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CREATIVE HANDICRAFTS

by

MABEL REAGH HUTCHINS

1938
RICHMOND, VIRGINIA
LEISURE LEAGUE OF AMERICA

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MAKE YOUR OWN DESIGN

Work thou for pleasure,
Paint or sing or carve
The thing thou lovest,
Though the body starve.
He who works for glory
Misses oft the goal;
He who works for money
Coins his very soul.
Work for the work's sake
Then, and it may be
These things be added unto thee.

KENYON COX.

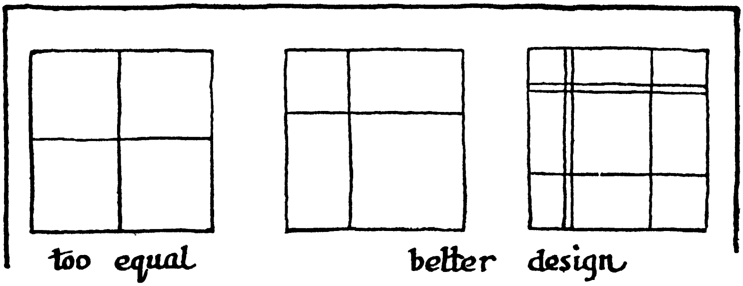
WE CAN'T all work for pleasure all the time, but we can work for pleasure in our leisure and there's no greater satisfaction than creating something with our hands.

As the chief joy of creating is in working out one's own designs, I have, instead of describing in detail definite articles to be made, given the general principles of each craft and prefaced the whole with a few principles of design.

The very first of these to keep in mind, particularly as applied to crafts, is that the object designed shall fulfill its purpose efficiently. If it is only for decorative purposes, to look beautiful, there is much more freedom of decoration. But if usefulness is the primary object then, no matter how decorative, how beautiful an object is, it is not well designed if it does not fulfill the purpose for which it was made. The spout of a pitcher must be so shaped that you can really pour from it, the handle so formed that you can lift the pitcher by it. The decoration should not detract from the usefulness.

Every good design should have one dominant element. The other elements should be of varying degrees of subordination to this. Action is expressed by slanting or curved lines, repose by horizontal lines which also show width, stability and dignity by vertical lines which also show height. All lines should have some relation to one another and not run out in any direction. This is called rhythm or related movement. There must be balance, either formal, in which the sides are symmetrical, or informal, in which the sides are unlike but where there is a unity of tone, form and values. There should be a consistency or harmony of form, texture and color.

Always keep in mind that an equal division of space is not likely to be as attractive as an unequal. One space should take precedence in height, width or bulk. In a square object, for example, the main lines should not fall on the half or quarter mark of the square. By experimenting with horizontal and vertical lines in a square you can prove this for yourself. The Greek division of space is more than one-half but less than two-thirds.



I

POTTERY

For I remember stopping by the way
To watch a Potter thumping his wet clay.
OMAR KHAYYAM.

Prehistoric man, so the story goes, accidentally came upon the idea of pottery when some clay over which his fire was built was baked so hard that it could be lifted out and used as a dish. The story even goes farther and says that the sand in the clay, melting and running down the sides of this first dish, furnished the idea of glazes. However true the story, it certainly is true that the art of pottery arose out of a universal need and, because it utilized a universal material, has been carried on in practically every portion of the world. In some countries it has been developed to the highest art, in others it still remains a primitive craft.

There is, perhaps, no other craft in which there is so much chance for experiment. Different clays, variations in glazes, a difference in the temperature at which a piece is fired, may produce something new and beautiful in pottery. So it is well to keep a careful record of the things you do. Who knows what you may discover? Josiah Wedgwood, a member of a family of potters who made only primitive stoneware, experimented with clays, with colors, with glazes,—and became one of the greatest potters the world has known.

POTTERS' CLAY

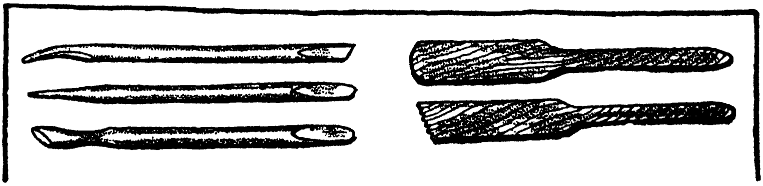
Potters' clay is a mixture of silica, alumina and various other minerals, their proportion determining the clay's plasticity and fusibility. It is less plastic than modelling clay which, on the other hand, is not fusible. There is no "best" clay to use, since the temperature at which it is to be fired, the use of which it is to be put, the color, and many other factors must be considered. A variety of ready-prepared clays, dry or moist, are on the market. The dry clay is a little cheaper but it must stand for several hours, or preferably over night, after it is mixed with water before it is used. Wet clay must be wrapped in a moist cloth and kept in a covered crock as it dries out very quickly. Clay that has dried out may be immersed in water until it has absorbed enough moisture again, and spoiled pieces, if they have not been fired, may be pounded up and mixed the same as the original clay. Work the clay thoroughly to get out any air bubbles before starting a project. Be careful to remove any foreign particles, no matter how tiny, as they might cause the piece to explode in the kiln.

THE GLAZE

The glaze is the thin substance put on over the hardened clay to form a smooth, glossy surface and to make it waterproof. Our Southern mountain potters get the orange-brown effect on their pottery simply by throwing common salt into the heated kiln to vaporize. This salt glaze is one of the oldest used by primitive potters. Modern glazes are of three kinds: transparent or clear, giving a shiny or glossy effect; matt, applied more thickly and giving a soft effect; and stanniferous or tin, which are opaque. All these glazes are on the market in powder form in a variety of colors and merely have to be mixed with water until they are the consistency of cream. The transparent glaze may also be obtained without color to be used as a coating over the various decorations made on the pottery.

TOOLS

The tools required for hand-modelled pottery, and that is the only kind we shall consider here, are few and simple. Fingers are the chief ones. You will need, however, to have a place to work that cannot be hurt by clay and water. A kitchen table answers the purpose, while a drawing or pastry board will do. You will want to protect yourself with apron or smock. A covered crock in which to keep the clay, a bowl of water and a bowl of "slip," which is sifted clay thinned with water until it is like thick cream, are necessary. Boxwood modelling tools of various shapes may be bought for a few cents apiece. Or you can shape small pieces of hardwood yourself. A wire is handy to cut the clay.

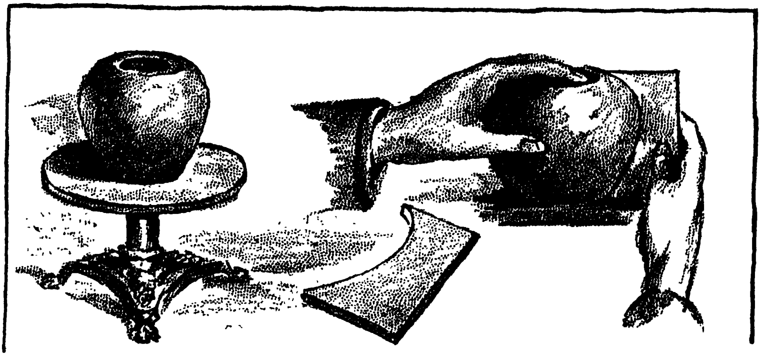


THE KILN

The kiln is the "joker in the pack" as far as pottery making is concerned. For the pottery cannot be brought to the finished state without being fired. If you are only making a few pieces, experimenting, about the only thing you can do is to locate the nearest kiln in your vicinity—many clubs, Y. W. C. A.'s and such like, where pottery classes are held, have them—and take your pieces to be fired at so much per cubic inch. There are small electric kilns available, or, if you become really interested in pottery, it might be fun to build an outdoor kiln of your own. There is a new Mexican clay on the market which, although considerably more expensive, can be baked in an ordinary oven so that it is hard enough for ornamental purposes.

POTTERS' WHEEL

A potters' wheel is not necessary for the beginner. There are, however, small table banding wheels, such as the one illustrated, which are turned by hand and are helpful in shaping and decorating.

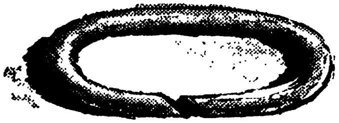


BUILDING YOUR FIRST PIECE

Don't attempt a large or difficult piece at first. And don't be discouraged if the clay doesn't shape up the way you want it. Modelling clay is like making pie crust. You have to get the feel of it. As long as the clay remains moist you can roll and shape it over and over until it does what you want.

First make a drawing of your piece on a sheet of stiff paper or cardboard and cut around one side of this drawing so that you have a template or guide to help you build straight. Have five pounds of moist clay ready in your crock to make about four small pieces. Place a lump the size of a baseball on the moistened table and flatten it down with the hands until it is half or three eighths of an inch thick. On it draw a circle five inches in diameter and trim off the edge. This will make a bowl with an outside base approximately four and one half inches in diameter since the clay shrinks about ten per cent as it hardens.

Around the edge of the top of this base make a few crisscross lines with a sharp tool to provide a better clinging surface for the wall. Take another lump of clay and roll it out with the palms of the hands into an even coil about a half inch in diameter and fifteen inches long. Flatten this out slightly and lay it edgewise around, but just inside, the base circumference, moistening the base a little with the slip first. Slant the two ends of the coil in opposite ways so they fit together as illustrated. With the forefingers press this coil down firmly onto the bottom, inside and out and where the coil ends join. Use short firm strokes. Make a second coil of the clay and place it on top of the first, brushing the edge with slip, in the same manner. Be careful to make the joints come in different places each time.

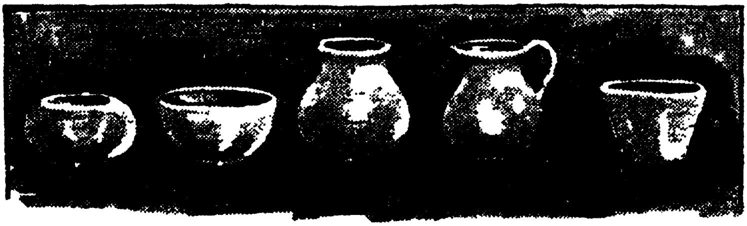


When the second coil is in place cover with a damp cloth and set aside for a few hours or over night so the clay will stiffen a little before you add another coil. When the piece has stiffened, smooth down the walls and inside bottom with a wooden tool before building higher. Add two more coils and set aside as before. Shape as you build, using your template to guide. It is easier to build a flared wall than one that is straight or incurving as the clay naturally falls that way. It may help to lap the incurving coil a little inside.

It's a good plan to make more than one piece at a time. If, for instance, you have two or three hours each day, make three bases and put two coils on each the first day, setting all aside to stiffen over night. Then, the second day, add two coils to each and set aside again.

The figures below are all variations of shape which can be molded on the five inch base. The low bowls are finished after the second or third coil. The first coil is set a little inside the edge of the base in the left hand bowl. The others should be built up four, five, or possibly six coils. The spout of the pitcher is shaped in the top coils with the fingers. The handle is a coil of the clay molded on.

When your piece has reached the height you wish, even off the top, testing it with the template, smooth it and let it dry over night. The next morning scrape and thin down the surface, outside and in, with fingers and wooden tools. If there are any hollows, wet them with slip and fill in with clay that is about the same moisture. When the walls are smooth and of the right thickness (don't try to make the first pieces too thin, between three eighths and a quarter of an inch is all right) moisten them and rub with the fingers and thumbs inside and out to polish. Be careful how you handle the piece. If you try to hold it by the edges it may break. Use as little water as possible for the smoothing process. If the bowl becomes



quite dry, light gray in color, before you have time to smooth it, use sandpaper.

Cracks, which are caused by shrinkage, may be mended, if the clay is not too dry, by putting a little slip in the crack and working in some clay of about the same dryness with a modelling tool. Cracks sometimes occur in the bottom if it is made too thick. Making it thinner in the center than toward the edges helps to prevent this.

If you have a kiln available it is advisable to have the piece fired as soon as it is thoroughly dry, then glaze it and have it fired a second time. If, however, you have to send it away to be fired, you can apply the glaze to the unbaked clay and manage with only one firing. If you wish to decorate your piece, and can have only one firing, the decoration, too, may be done before sending it to be fired.

GLAZING

Be sure the glaze is thoroughly mixed and stirred up each time before using. Glaze the inside first. This may be done by pouring glaze into the bowl, shaking it around so that every spot is covered, and then quickly turning the bowl upside down so that all extra glaze drains out. If any is left it may settle in the bottom and crack when fired. Let this inside glaze dry—it does not take long—before doing the outside. The easiest way to apply the outside glaze on a small piece is to slip the piece over the hand like a mitten and dip it in the glaze Or you can place it upside down in a pan and pour the glaze over it. Still another way is to apply the glaze with a brush. Use a soft, flat, paint brush and paint with short strokes which overlap so that every portion is covered. Wipe off any glaze that runs onto the bottom with a damp cloth or sponge so it won't stick to the table or the kiln.

It will probably be necessary to apply two or three coats of colored transparent glaze, to prevent the clay from showing through. Let each coat dry thoroughly before applying another. If the piece has been fired before glazing the glaze can be a little thicker. Matt glazes should be much thicker than transparent ones, just as thick, in fact, as it is possible to apply them without lumps. Be careful in the glazing process, for finger marks will show. The inside can be finished with matt or with a thin coat of transparent.

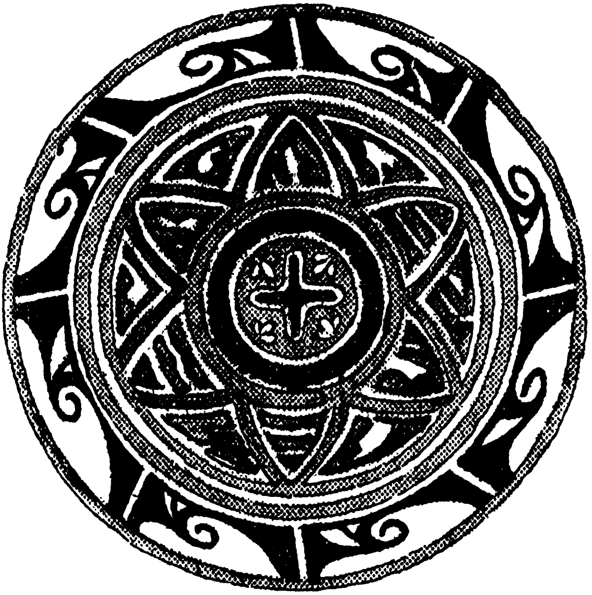
CAUTIONS

If a piece has to be refired, it should also be reglazed preferably with two coats and thinner glaze. Sometimes very nice effects are obtained by two or three firings. If the clay has been over or under fired fine cracks may appear in the glaze. If the glaze is blistered the clay used may have been too old, or there may have been impurities in the glaze. If there are bare places in the glaze it was too thin. If a matt glaze turns out too bright it was too thin or was fired at too high temperature. If there are pinholes in the glaze it has been cooled too rapidly.

DECORATIONS

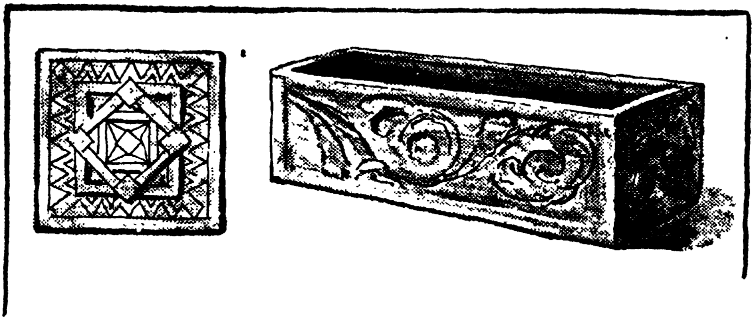
Decorations used upon pottery may be divided under two general heads: those done on or in the soft clay, such as incising, inlaying and embossing, and those done upon the dry clay by means of color. For either type a design should be worked out on paper first.

Incising, which is the cutting out of a design in the clay, should be done when the piece is only partially dry. A design can be drawn on with pencil or scratched on with a sharp tool. As in block prints, this design can be developed either by cutting out the design itself or the background, thus leaving one or the other in relief. Using



a sharp, narrow chisel, make a shallow groove in the surface of the clay. If the clay is moist enough this can be done without breaking the edges. Make sharp, clear lines in cutting and then work over the trenches with a moist camel's hair brush to soften them. If, after you have made your incised design, you press clay of another color (mixing color with some of the same clay will do) into the depression you will have an inlay. In doing this it is well to have the piece a little thicker than usual as the entire surface must be scraped smooth after the inlay has dried to about the consistency of leather. You can polish this surface by rubbing it with a rounded wooded or steel tool and it will retain the polish after it is fired. Cover it with a thin coating of colorless transparent glaze to waterproof it, letting it dry thoroughly before firing.

To emboss or build up a piece, the clay should be moister than for incising. And the clay used to model

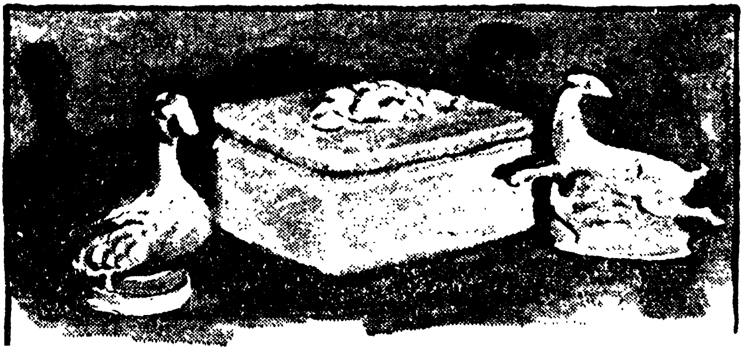


should be as soft as possible and still workable. If you do not try to raise the design to the desired height all at once but, instead, lay on the clay a little at a time you will have better results. Another way to emboss is to use slip, colored or plain, applying it in thin coats with a brush. Let each coat get stiff before you put on the next, but keep the entire piece moist. When your design is raised as high as you wish, go over it with a tool so the brush marks will not show. Then glaze it as you would an inlay.

There are a number of methods of decorating pottery with color. You can mix pigment with the clay before modelling the piece. You can mix the color with water and gum arabic, paint the surface of the clay while it is still moist, and set it away to dry a little. Before the clay gets too hard, work the color into it by rubbing with a smooth, polished tool. This will make it glossy. The piece will not be waterproof, however, unless you give it a thin coating of transparent glaze. Be sure that it dries out thoroughly, three or four days, before it is fired. Another method is to paint on a design with colored slip. Or you can buy "underglaze colors," mix them with water and a little gum arabic to a consistency that will flow from the brush and paint the design with them. Put a thin coating of colorless transparent glaze over the design when it has dried a little so that the colors can not rub off after the piece is fired.

Tiles and angular pottery, such as cigarette or plant boxes lend themselves particularly well to decoration. For these be very careful to have the clay well sifted to prevent warping. Roll the well-mixed clay out on your board into a slab between a half and three eighths of an inch thick. A rolling pin is the best tool for this. Make a pattern of the walls and base of your piece on thin paper and trace it onto the slab of clay with a sharp tool. Then cut partly through the traced lines with a sharp, thin knife. When the clay has dried so that it is about the consistency of soft leather it will have contracted. Finish cutting through the lines. Keep the pieces in this semi-moist condition and put on whatever designs you may wish. Then roughen the edges of the pieces, moisten them with slip and fit them together.

Figures, such as illustrated here, are great fun to model. Follow the same principles as in all pottery.



II

WEAVING

Both take their stations and the piece prepare,
And order every slender thread with care;
The web enwraps the beam, the reed divides,
While through the widening space the shuttle glides,
Which their soft hands receives then poised with lead
The swinging weight strikes close the inserted thread.
Each girds her flowing garment round her waist,
And plies her foot and arms with dexterous haste.
Ovid.

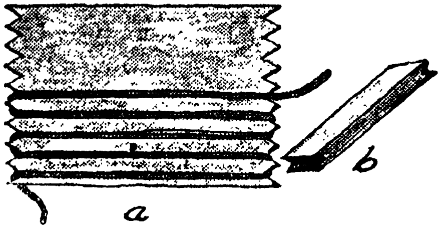
Human beings, like the caterpillar and the spider, always seem to have had the instinct to spin threads and make webs. No matter how primitive the people, either now or in ancient times, some form of weaving is found. And wherever found much the same processes are followed. Long fibres of the material at hand, the warp, are stretched or warped on a frame or loom and interlaced at right angles with other materials, the weft, thus forming a more or less durable fabric.

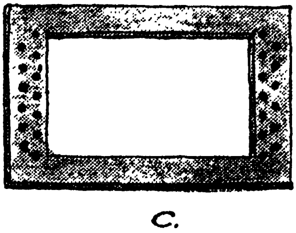
Complicated machines have been invented to take the place of simple hand looms, but no matter how mechanically perfect these machines, their weaving does not surpass that done on primitive hand looms.

The first loom consisted of nothing but a frame wound with the warp, the weft threads being woven over and under the warp threads with the fingers. Then some person who objected to this rather tedious work put two sticks between alternate warp threads, one under the odd numbered threads, the other under the even numbered, and tied their ends together to prevent their dropping out. A cross was thus formed in the warp which kept the threads from getting out of place, held them parallel, and also formed an opening or shed. With the weft wound on a bit of wood called the shuttle the passage from right to left was easy, but the return process was still tedious. A new shed or passageway had to be formed by lifting up the back threads in order to have the weft pass over and under alternate warp threads. This still had to be done thread by thread with the fingers. So the next step was that someone worked out the leash or headle rod, to which loops of cord, called leashes, are fastened, each one being looped around one of the back threads of the warp. Suspended in front of the loom, it jerks the back warp threads forward so that a left to right opening is made through which a flat shed stick may be thrust. This stick, turned edgewise, makes a wide passageway for the shuttle. Turned flatwise again, it serves as a batten to press down the weft to make the weaving firm.

If you wish to try weaving without the expense of buying a loom there is no reason why you, as did the primitive peoples, should not make your own. A wooden board, with notches cut at regular intervals, top and bottom, will serve very well to weave bags, pillow tops, table mats, scarves and the like. Have the board about an inch wider and two inches longer than the largest piece you wish to make. (Smaller pieces may be made on the same board by leaving off some of the warp.) Hook the warp threads around the points of the notches as shown in *a*.

A rectangular picture frame with small nails on top and bottom in two rows so that the first nail of the inside





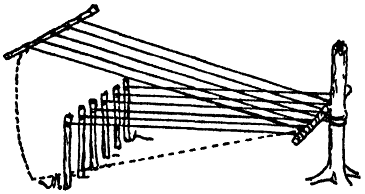
row is equidistant between the first and second nails of the outside row also makes a satisfactory loom, *c.* Thus all odd numbered warp threads will be on the outside row of nails and all even numbered ones on the inside. You can, if you are using short lengths of weft, use a tape needle for a shuttle. Or you can make a shuttle out of a thin, smooth piece of wood, *b* above, and wind the weft on it.

You can be most primitive, using nothing but the board with the warp wound on it and pick up the threads one by one as you would in darning, or you can put in the cross sticks to form the right to left shed and even make a headle rod for the opposite process, with a shed stick to hold open the shed and batten the weaving. You can use a comb or fork to batten down the weft if you choose to weave with fingers and needle only. On just such simple looms as this many beautiful tapestries have been made.

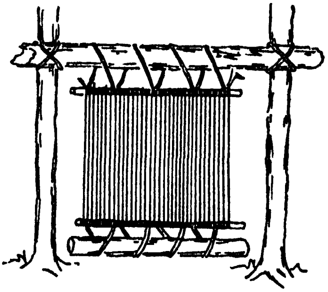
A simple and satisfactory table loom is illustrated on page 20, top center. This loom is on the market in various sizes. It has rollers on which to wind the warp so that several yards may be woven instead of only a piece the length of the frame. Harness looms are on the market in both metal and wood, in sizes from eight inch weaving space up, at prices varying from $5.50 for an eight inch table model to $65 for a thirty-two inch floor loom.

A CAMP LOOM

In camp or summer cottage you can make a simple outdoor loom, as illustrated, by fastening a crossbar to a tree and setting out stakes several feet away in a row, with their tops a convenient height from the ground for weaving. Heavy cords, tied to these stakes and to the crossbar so that they are parallel, form the odd numbered warp threads for your loom. Between these cords on the crossbar tie other cords, cut a little longer than the distance between tree and stakes, and fasten their ends to another, loose, crossbar. These form the even numbered warps. You will need an assistant to raise and lower the loose crossbar to form the sheds in which to place the weft. With the crossbar up, place a row of weft in the shed thus formed, then have your assistant lower the crossbar so that it is below the level of the staked cords and in the new shed thus formed place another row of weft. When your mat is the length desired, loosen the warp cords, an even and an odd one at a time, and tie them securely so the weft will not slip out. Rushes, for instance, make fine material for camp mats.



Camp loom



Indian loom

You might experiment with design by using different material in stripes or even try dipping some of the rushes or grasses in dyes made from roots, barks, berries or vegetables to get colors for stripes. (See color chart of dyes.) Another outdoor loom, such as the Indians use, is suspended between two adjacent trees, as illustrated, and, of course, works on the same principle.

MATERIALS FOR WEAVING

If you look at almost any piece of plain cloth through a microscope, no matter what the material you will find that the warp threads differ from the weft in at least two ways. They are finer in size and are made of much harder, more tightly twisted strands, for these threads have to stand much more strain than the weft. The weft thread is often only slightly twisted so that it is soft and can be pressed down tightly to make firm cloth. This principle of strong, tightly twisted warp and soft, slightly twisted weft holds true for practically all weaving. Cotton and linen warps may be bought at any department store or ordinary thread may be used for small pieces. Almost anything may be used for weft. Attractive bags, cushions, table mats, may be made of old silk stockings or lingerie, cut in long, spiral strips. Wools, cotton, linen, raffia, hemp, may be used.

There are a few general rules to observe in any weaving. First of all, be careful to stretch the warp threads evenly on the loom so that the tension is even everywhere. Wind the weft on the shuttle without twisting it. See that each strand lies straight in the shed opening, being careful to leave it loose enough so that it does not draw in the edges of the cloth and yet not so loose that loops are left along the edge. Before starting to weave with the weft material, weave a few rows with the warp. This makes a firm foundation for the weft and helps to distribute the warp evenly. Remember that for plain or tabby weaving the order of putting the shuttle through the open shed from right to left and the leash shed from left to right must not be changed. Press the weft together evenly and regularly so that there are always the same number of threads of weft to an inch. Keep in mind when putting the warp on the loom that coarse warp requires fewer threads to the inch than fine warp. Don't leave loose ends of weft. Weave them back in and cut off later. When the piece is all woven tie alternate threads of warp immediately to prevent raveling.

PLAIN OR TABBY WEAVING

The weaving thus far described, in which the weft passes alternately through the shed from right to left between the odd numbered and the even numbered warp threads and from left to right between the alternate odd and even threads, is called plain or tabby weaving. In this weaving, in which the tension is enough to pull the weft straight, both the warp and weft threads show. That is, if white warp is woven with black weft, the woven fabric will be a mixture of black and white.

If, however, you wish to get a different effect, it can be done in a variety of ways, even with the plain weaving. You can use a much heavier, very soft weft which will spread out over the warp and cover it up so that you have a stripe of plain color. Or you can, instead of drawing the weft tense, place it in very loosely and it will cover the warp. You can weave in a design by counting off the warp threads and leaving spaces of the warp to be woven in with different colors. You can make horizontal stripes by using different colors for the weft. Or you can set up your loom with stripes of colored warp and weave it with weft of one color which will give you vertical stripes. Or you can have both the warp and the weft stripe, thus making a plaid, like the Scottish tartans. You can use different materials to make stripes in the weft such as silk or wool in a cotton or linen piece.

PATTERN WEAVING

Another way to get effective designs is to weave in extra or secondary wefts, either while the weaving is in process or after the plain weaving is finished, using a tapestry or packing needle, or even a tape needle. This method is called inlaying or brocading. It is much more effective if, instead of weaving over and under the alternate odd and even warp threads, you weave under one thread and over two, or even three or four, so that most of the secondary weft is on top. Use thicker material for weft in brocading. Have several needles threaded with the different colors you have decided to use in your design.

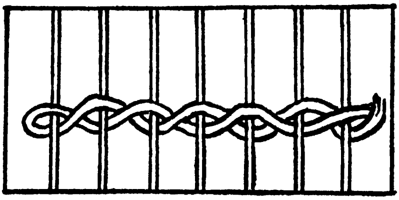
Another method of brocading, which is certain to cover up all the warp, is done a little differently. Carry your needle, threaded with a double thread of the colored weft, across from right to left, going under two threads of warp and then over two threads. When you reach the left side start back again going over the threads that you went under before and under the threads you went over. This completely covers the warp. Make several rows like this if you wish a stripe of solid color in brocade weaving. Be careful not to draw this secondary weft too tight, or to leave loops at the edges.

To make a checkerboard effect, have two needles threaded with different colored wefts. Weave across from right to left with one color, passing over several threads and then under the same number. Instead of coming back with this same color, take the needle with the other color and cover the spaces left uncovered by the first needle. Continue this way—across from right to left with the one color and from left to right with the other—until you have completed squares. Then reverse the colors, weaving from right to left with the color you have been using from left to right for the second row of squares.

If you wish to have a border of plain weaving instead of starting the brocading at the edges of the piece, weave a plain strip on each edge and fill in the center warp with the colored weft.

TAPESTRY WEAVING

In this weaving, a very primitive kind of decoration in which marvelous results were obtained by many ancient weavers of Egypt and China, the warp threads are not visible at all except as they produce a ribbed effect on the finished product. The tapestry needle is first passed through from right to left covering alternate warp threads, or alternate pairs or even triples of threads, and is then brought back from left to right, covering the warp threads left bare by passing first above and then below the right to left weft thread, thus forming a chain around the warp. (See sketch.)



It takes these two threads, from right to left and back from left to right, to make one complete thread across. You can make many designs in this tapestry weaving by using different colors and different shapes for the deign.

MIXED WEAVING

Old fabrics, woven thousands of years ago, and exhibited in museums show much mixed weaving. This consists of a ground work of plain weaving in which open spaces are left in the warp and filled in with designs of tapestry weaving. Sometimes these spaces were left with just the warp showing, giving a lacy effect to the tapestry. Often small designs were woven in these open spaces with the warp left bare around them.

JOINING WEFTS

In much of the ancient weaving the slits made where the plain weaving left off and the tapestry weaving began were often left open or else sewed up afterwards. In some of the Scandinavian weaving they are dovetailed together. Another way to join the two weavings and so avoid the slits is by locking them. It is not necessary to join each two threads of weft but usually not more than two threads should be left open if you wish your weaving to be strong. Use your own judgment, locking them, dovetailing them, or leaving them open and sewing them up afterwards like the ancients did. After all, a thousand years is quite a while for a piece of weaving to last. The slits and open spaces didn't apparently make much difference.

A WORD OF WARNING

Don't expect to start out and weave a perfect piece without any difficulty. Like everything else, practice is required. At first the shuttle will insist on popping out between warp threads, warp threads may break, your weaving may be uneven, because you have pulled the weft too tight or not battened it down enough. Just don't get discouraged.

III

BASKETRY

And in the handywork of their craft is their prayer.
ECCLESIASTICUS.

Closely allied to the weaving of available materials into fabrics for clothing among primitive peoples was the weaving of twigs, grasses, rushes and the like into containers or baskets.

Born of necessity, basketry soon became an almost universal art. The Chinese and Japanese are justly famous for their beautiful baskets. But the American Indians have always been the masters of the art. They have experimented with materials, dyes and weaves with unending patience and much artistic skill.

Not only the materials the American Indians used but also imported materials are available for the modern basket-maker. Some of them are:

Willow shoots, usually cut when about a year old, which may be used either green or dried, with the bark left on or peeled.

Reed, made from the pith of rattan, which grows wild in the Far East. Its shoots often reach a length of five hundred feet in a year's growth. The best reed is manufactured in Germany and Belgium though it is also made in the United States. It comes shaped oval, flat and round.

Cane, made from the outer surface of rattan, which is glazed and cut into narrow strips. It is stronger than reed and harder to manipulate.

Raffia, the outside covering of the Madagascar palm, a light, tough material, which can be bought in bundles or braids of from one to five pounds either in its natural straw color or dyed.

Rush, another name for our common cat-tails, sold both flat and braided, dyed in dull shades of green, or in natural color. If you can gather it yourself from some swamp in early summer be sure to let it season in an airy attic or barn before you use it.

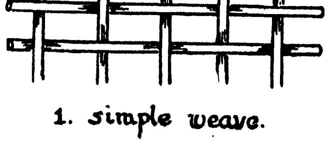
Splints, thin pliable strips of wood, usually maple or hickory.

Whatever materials you use, they must be made soft and pliable by soaking in water. Willow and splints may be soaked for several days, while reeds require only a few minutes of soaking, preferably in warm but not hot water. Raffia should be kept wrapped after soaking. Rush need only be sprinkled, not made really wet.

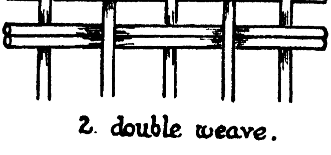
Weaving baskets requires no loom. A pair of scissors, an awl, a knife (a Sloyd knife is best), a pair of pliers, preferably flat nosed, a ruler or tape measure, a pan of water and a sponge or cloth to dampen the weaving as you work, are the only tools necessary.

VARIOUS WEAVES

The simple weave is the most elementary of the basket weaves and consists of weaving in and out, over one



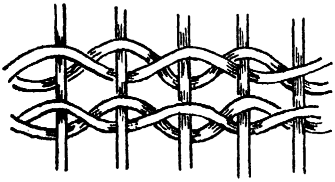
1. simple weave.



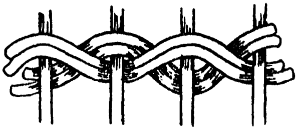
2. double weave.

spoke and under the next, with one weaver while the following weaver goes over and under alternate spokes.

The double weave is the same as the simple except that two weavers are woven as one.

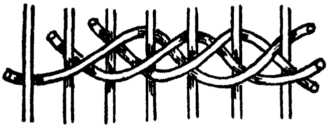


3. pairing.

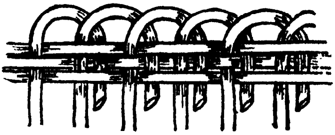


4. double pairing.

In pairing, two weavers are inserted alternately behind two successive spokes and crossed between, the under weaver being brought forward each time and made the upper weaver while the upper becomes the under.



5. triple twist

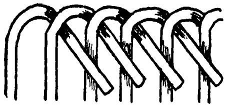


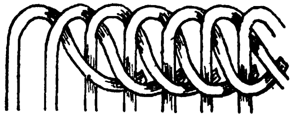
6. open border

In the triple twist three weavers start behind three consecutive spokes. Beginning with the first spoke to the left and weaving to the right, bring the first weaver from behind the first spoke out in front of the next two spokes then behind the following and out in front again. The second and third weavers are treated similarly, starting with the second and third spokes respectively, and always bringing each weaver in front of two spokes and behind the next one.

BORDERS

For an open border allow about six and one-half inches on each spoke. The border is made by placing each


7. closed border (first step)


8. closed border (second step)

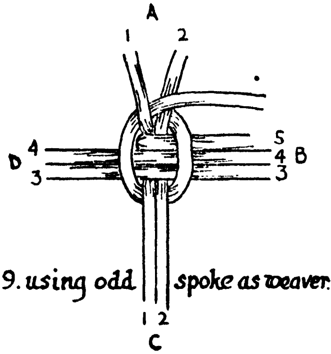
spoke behind the next one to the right and pushing it down through the weaving.

To make a closed border weave to the right, carrying one spoke behind the next spoke and out to the front again, and proceed in this way until every spoke is placed in this position. The last spoke is pushed back and under the first one. For the second row of this border, place the first spoke, which has been brought behind the second, in front of the third spoke and behind the fourth spoke. Continue in this manner until the row is finished. Be careful to draw all the spokes tight, leaving just space enough for the preceding spoke to pass through.

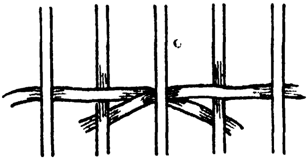
When you become adept you can invent new borders.

TYPES OF BASKETS

Round willow baskets are fine for the beginner because their round bottoms are the simplest to construct. For a basket of willow which will have large spokes, take four spokes (Nos. *1, 2, 3, 4* in Fig. 9) of the same size, crossing them as illustrated. Choose a very long piece of willow for a weaver with one end the same thickness as the four spokes and use the thick end for the extra half spoke, *5*. Starting from the center, twist *5* around under the two spokes *1* and *2* as at A, over the next three spokes, *5, 4* and *3,* as at B, under the next two, *3* and *4,* as at D. Continue with this weaver under *1,* over *2,* under *5,* over *4,* under *3,* and so on in simple weave until the weaver is used up. Then join a new weaver as in Fig. 10. New weavers are joined in this way whenever



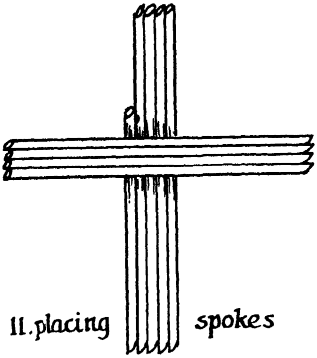
9. using odd spoke as weaver



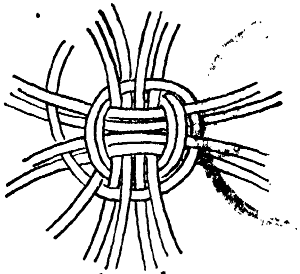
10. joining weavers.

needed. When the diameter of the basket is the size you want, insert new side pokes deep into the weaving, midway between each base spoke, as these are so far apart at the outer rim of the base that your basket would be wabbly if woven only on them. New spokes are inserted thus as required. With the pliers turn up the spokes to form the sides of the basket. (Have them quite wet or they may split.)

It is a good idea to have a board to work on now, fastening the base of the basket securely to it by driving the awl through the center so that it will revolve while weaving. The Indians wove their baskets upside down and this had its advantages as you will doubtless decide by the time you have jabbed spokes into your eyes a few times. Perhaps you can invent a method of elevating your basket on some sort of stake, like hats in a store, and so work from the top down. Your first weaving may be uneven and too loose. It takes practice and care to make tight, close, even work. Keep pressing down. Learn to curve the weaver between each two spokes, pulling on both downward and upward strokes. As you work you will develop a sort of rhythm. Keep the tension of the weavers the same for if you leave one looser than another your basket will be crooked. Shape to the desired curve as you weave.



11. placing spokes

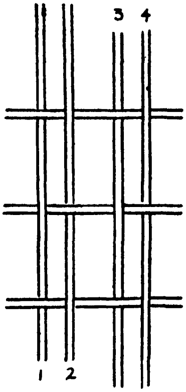


12. starting to weave.

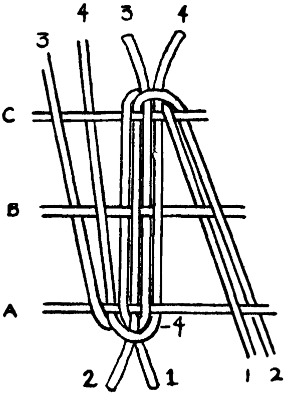
Make only a shallow basket for your first attempt. When it has reached the desired height, finish with a border as for instance in Figs. 6, 7 and 8.

For a *Round Reed Basket* use eight spokes of equal length and one cut a little more than half length, Fig. 11. Place the spokes across each other as illustrated, binding them securely with the end of the piece of reed you are going to use for a weaver. Spread the spokes out and start weaving as in Fig. 12.

Oval Shaped Baskets, because of their bottoms, require more skill to shape but once the bottom is formed the weaving is just as easy as in the round. You will need three cross spokes of heavy material the width you wish the basket to be, and four long, more pliable spokes. Place them as shown in Fig. 13, though closer together, since they are spread in the illustration to make the weaving clear. Spokes *1* and *2,* Fig. 14, are crossed at the bottom. Spoke *1,* starting at the top, goes under *3* and *4,* down on right side over C, under B and over A. Spoke *2* goes over *3* and *4* at the top, down on right side under C, over B and under A. Spokes *3* and *4* are spread at the top without crossing. *3* goes under *1* and *2* at the bottom, up over A on the left side, under B and over C.



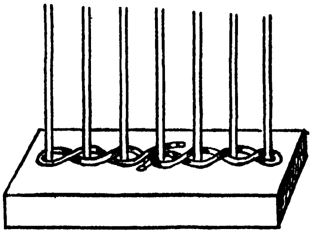
13. forming slath for open bottom.



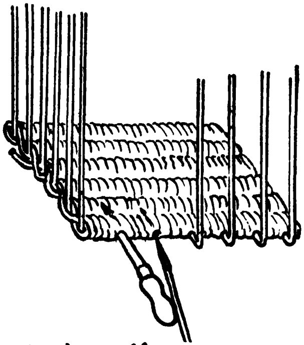
14. oval bottom.

Spoke *4* goes over *1* and *2* at the bottom, under A, over B and under C. Continue weaving with them, joining on spokes if necessary, until the bottom is the size desired. Then proceed as in a round basket.

Square or rectangular baskets are not difficult but you will need a carpenter's vise or some other method of holding the spokes firmly upright and parallel while weaving the bottom. Sketch 15 shows a board with holes bored into it at regular intervals into which the pointed ends of the spokes are firmly wedged. Choose an uneven



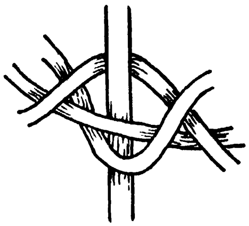
15. holding spokes for square basket.



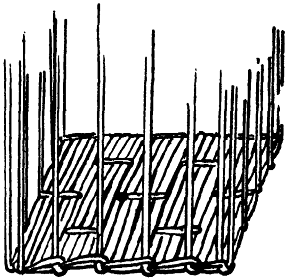
16. inserting spokes

number of spokes, five, seven or nine, whatever width you wish the basket to be, having the two outside ones larger and stronger than the inside ones. Weave a couple of rows back and forth with a single weaver, as illustrated. When this is done fill in the bottom with simple, double or triple weaving, whichever you wish. The trick is to keep the sides parallel, making the weaving firm and even without pulling the weavers so tight that they curve the outside spokes so the bottom is no longer square.

Finish off the other end of the bottom with a couple of rows just as you started it. Then take the bottom out of the board and put in the side spokes as in Fig. 16. This is easy enough at the ends, as you can easily push the pointed side spokes in beside the bottom spokes, but you will need the awl to bore holes in the sides. Be sure to push the spokes deep into the bottom. Space the desired number of spokes in the sides, having one more on one side than on the other to make an uneven number for weaving. After wetting them turn them up with the pliers. Then, to make the basket stronger, choose four corner spokes of heavier material and, weaving a triple weave around the basket, fasten the corner spokes in with it as in Fig. 17. Weave up the sides of the basket any way you wish.

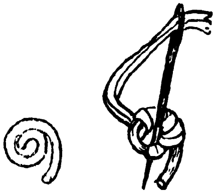


17. corner spoke

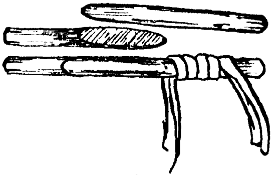


18. scalloming spokes.

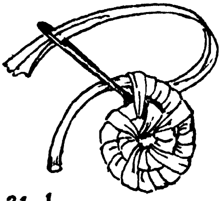
Scalloming, as shown in Fig. 18, is another way of putting on side spokes.



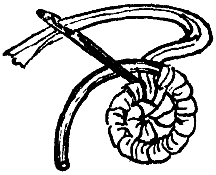
19. forming buttons



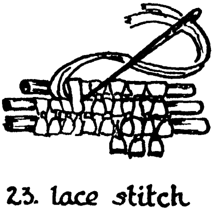
20. splicing



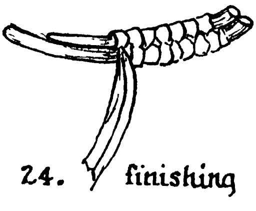
21. lazy squaw.



22. figure eight



23. lace stitch



24. finishing

There is another type of basket which is not really woven at all but sewed. Many of the Indian baskets are made this way. In the South pine needles are much used for sewed baskets, but reeds, grasses and rushes, may also be used for foundations. You can experiment with any grasses or rushes that grow in your vicinity. These materials are coiled into shape with raffia or other fibres. A variety of stitches are used to get different effects.

To make a *Raffia Basket,* first of all be sure that the raffia is wet (soaked and drained in a cloth), as this keeps it from shredding while being sewed, and that the reed used for the foundation is soaked in warm water long enough to make it pliable.

There are two ways to make the button or coil for the center. You can shave down the end of the reed, twist it into a tiny circle and, with the wide part of a strand of the raffia pulled through a needle, sew the reed into place with the narrow, hard end of the raffia as in Fig. 19. Or you can tie a knot in the narrow end of the raffia a few inches from the end and wrap raffia around the knot to form a center into which the slanted point of the reed is pushed and the coil begun. This makes a round coil. Be careful to keep the strands of raffia straight as you sew.

If you wish to start an oval center, cut the reed about three inches from the end, fold it back on itself and sew the two strands together with the Fig. 8 stitch (Fig. 22) and then continue on, coiling the reed around this oval center and sewing it with the same stitch until the bottom is the size you want.

When you wish to join on new foundation reeds, make a slanting cut in the ending reed and a slanting cut the opposite direction in the beginning reed and fit them together. It is important to have them match so that the spliced reed is the same size as the other reed or it will make a bulge. (Fig. 20.)

To join strands of raffia let the end of the old strand run out parallel to the reed, place the end of the new strand under the reed with its end to the left, wrap some of the new strand, right to left, over the two ends until you come to the old sewing and proceed as before.

Shaping. If you are making a straight sided basket you must be careful to hold the rows of reed exactly over each other. If you wish the basket to flare, as in turning up the sides, each row of reed must project a little from the preceding one, while if you wish to make the basket curve inward, each succeeding row must be held slightly inside the preceding.

RAFFIA STITCHES

Lazy Squaw Stitch. The button is made as described above. The outer coil is wrapped once from back to front with the raffia, the needle is thrust through the upper part of the coil below, taking up just enough of the coil to hold the stitch. The raffia is pulled through, and the outer coil is wrapped again, and so continued to the finish of the basket. (Fig. 21.)

Figure Eight Stitch. In making this stitch, the sewing material is passed around each coil twice. It is carried over the outer coil from front to back, then up through to the front between the outer and inner coils, through to the back between the inner coil and the one below, up to the front between the outer and inner coils, and then over the outer coil to the back again, thus making the Figure Eight. (Fig. 22.)

The Lace Stitch. Hold the coil in the left hand, wind the raffia around the reed, bring it from the back over the top of the reed toward the body, and pass the needle through the center of the coil, thus making one long stitch on the top. Bring the raffia around the coil and the reed from back to front, and pass it down between the reed and the coil at the left of the stitch. Next insert the needle up from the back between the coils and at the right of the stitch and pass it down at the left of the stitch between the coil and the reed. This completes one knot. (Fig. 23.)

To finish the sewing so there will be no bulge, cut the reed in a long slanting cut and sew it in gradually to a tapering finish as in Fig. 24.

COLORING AND FINISHING

There are various ways to finish baskets. The simplest of all, and an excellent way to preserve them, is to rub on boiled linseed oil with a soft, flat brush, being sure to work it into all the crevices, and then rub thoroughly with a brush or soft cloth. This gives an old looking finish.

If you wish a colored basket in the linseed oil finish, you can use clear, tube oil paints, squeezing some out on a dish and rubbing it on, without mixing, over the oil, with an oil paint brush. Be careful not to have the color too thick or it won't sink into the reed. You can get a variety of colors in this way by applying different colors to different parts and blending them. Or you can apply a turpentine stain, which consists of the oil paints mixed with turpentine. Again, be careful not to get the mixture too thick so that it looks like paint instead of a stain which sinks into the basket. Experiment with bits of reed before applying the stain to the basket.

Dyeing can be done with ordinary cotton dyes according to directions on the packages. You can vary the colors by dipping the entire basket into a light dye, then the top and bottom, or just the bottom, into a darker color. Or you can get any number of designs in the weaving by dying some of the materials, reed or raffia, different colors and weaving them in. (See color chart and dye recipes in chapter on Dyeing.) You can combine white paint or enamel with the tube oil colors and rub the mixture into the woven basket with a flat oil-paint brush.

Glazing of any of these colors can be done by applying a second color after the first has thoroughly dried and, while it is still wet, wiping it off with a cloth so that some of it remains in the lower parts of the weaving.

Antiqueing is done by mixing some raw umber with turpentine and putting it on over the painted basket. Let it stand a few minutes, and then wipe it off with a soft cloth until you get the mixture of light and dark effect you want.

Waxing gives a dull, glossy finish to your basket. Use ordinary floor wax and rub it with a soft brush or cloth mixed with a generous portion of elbow grease.

CANE SEATING

As the weaving of cane seats in chairs is really a branch of basketry, it is briefly described here.

The cane used for chair seats is made from the outer bark of the rattan. This bark is cut into strips from 1/16th to 3/16th inches wide and from about eight to eighteen feet in length, and prepared for the market in bundles or hanks of a thousand feet.

The two patterns generally used are known as the Common Seat Weave and the Elementary Square Pattern. The first is stronger and more practical, while the latter is used for decorative panels or places where there is not much strain or usage on it.

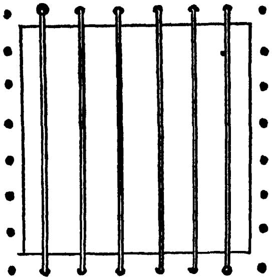
No tools except scissors, a penknife, four wooden pegs and an awl are required. The rolled strands should be soaked in lukewarm water for a few minutes and then drained. If the strands stay in the water too long they will get dark colored and water-logged. It is better to have a sponge or damp cloth to moisten them if they get too stiff as you work.

Common Seat Pattern. If your stool, chair or what-have-you is square in shape, start at the right of the upper left-hand corner hole. Most chairs, however, are irregular in shape, wider in front, round, or even oval, so it is safer to start at the center hole at the back of the seat so that you will be sure to come out even. In reseating old chairs duplicate the original if you can—there is usually a piece of the broken seat to use as a pattern. Don't be alarmed if you can't seem to use all the holes, the important thing is to keep the pattern correct. Keep the first rows of weaving loose or the diagonal rows may tighten the seat so that the strands will break or the frame warp as it dries.

Step 1. Insert a strand of pliable cane, shiny side up, in the center hole at the back of the seat, letting 3 or 4 inches extend below the frame. Then insert a wooden peg in the hole to hold the strand in place. Be careful not to let the strands twist. Pulling the entire length through finger and thumb will straighten them out. Take the end of the strang over the opening to the hole directly opposite in the front of the chair. Hold it in place with a peg. Smooth out the cane and bring it up through the first hole to the left, across the opening to the hole directly above in the back of the chair, down through and up to the second hole to the left, etc., repeating this up and down process until you have vertical strands across the left side of the chair and then do the same thing on the right side.

Step 2. Starting at the center hole of the right-hand side of the chair, weave a row of horizontal strokes over the verticals in the same manner as in Step 1.

Step 3. Repeat the process of the first step, weaving another row of verticals through the same holes. Take



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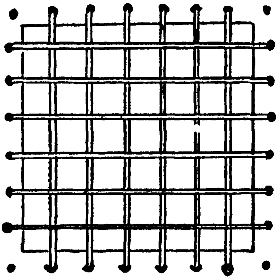
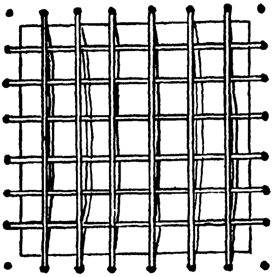


Step 2.



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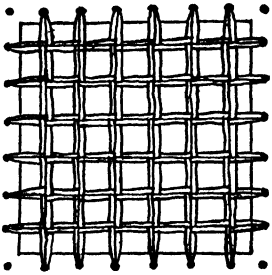
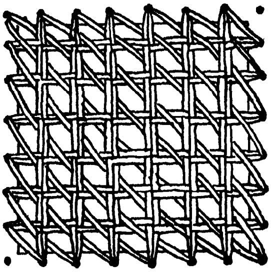
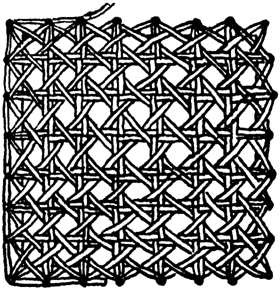


Step 4.



Step 5.



Steps 6 and 7.

Caning a chair.

this strand over the horizontals of Step 2 and parallel to the verticals so that the horizontal row is between the two vertical ones.

Step 4. This begins the actual weaving. Take a smooth, pliable strand and start weaving horizontally from the upper right-hand corner, in the same holes as Step 2, going over one vertical and under the other. If the cane gets too stiff dampen it with the sponge. Keep pushing the vertical and horizontal strands together to form pairs so that there are open squares between.

When starting a new strand of cane the easiest way is to plug it into the first hole with a peg, wrapping it later when there is enough weaving. When ending one, twist it three or four times around the nearest strand made between holes, keeping the shiny side outward, and clip.

Step 5. Now for the diagonals. Start at the upper right-hand corner hole and weave diagonally across to the lower left-hand corner, over the verticals and under the horizontals. Keep the diagonal line straight even though it does not come out at the corner hole at the bottom, which may happen if your chair is not exactly regular in shape. The first diagonal will act as a guide for the others which, if correctly done, will run parallel to it. When one-half of the diagonal weaving is in, start again at the upper right-hand corner hole (two strands start from the same hole) and weave the other half the same way.

Step 6. This repeats the process of the fifth row, starting from the upper left-hand corner and weaving diagonally across to the lower right-hand corner. When finished each pair of diagonals should have the woven vertical and horizontal first two rows between them.

Step 7. After finishing off the projecting loose ends by winding them around the nearest strand between holes, the chair is ready for binding. Use a heavier cane for this, holding it over the holes of the frame and bringing a strand of the regular cane up through a hole on the outside of the binding cane, across it and down through the same hole. Repeat this all around the chair, securing the binding through each hole. Be careful to make the corners square and wrap both ends of the binder with the weaving cane.

Elementary Square. As already stated, this is not as strong as the Common Seat Pattern. It is better to use a wider cane so that the open spaces will not be so large. The first step (verticals) is the same as in the Common but in the second step the horizontals are interlaced with the verticals in an over-under weave. The third step begins the diagonal weaving, starting in a corner hole but having only one diagonal starting from that hole. This goes across diagonally on top of the verticals and horizontals without weaving. In the fourth step the strand runs diagonally in the opposite way and is woven under the single diagonal strand and over the cross made by the vertical and horizontal strands. (Fig. 2.) The piece is bound in the same way as described above.

IV

METALCRAFT

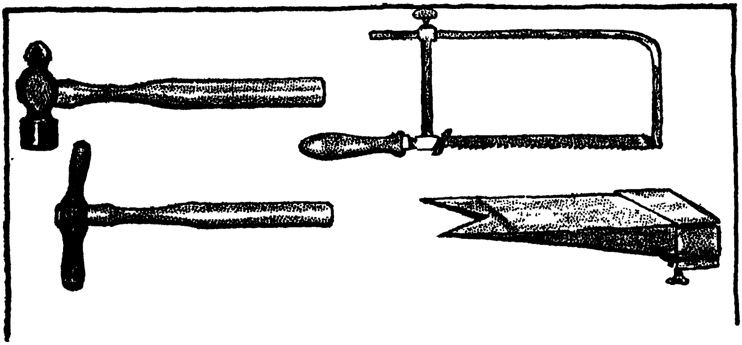
> *And to devise cunning works, to work in gold and in silver, and in brass, and in cutting of stones for setting, and in carving of wood, to work in all manner of cunning workmanship.*
>
> EXODUS.

Working with metals, perhaps because of the intrinsic beauty of the basic materials, perhaps because of the joy of creating something of such permanent, enduring charm, and perhaps, too, because so many attractive things can be made without elaborate tools or equipment, is one of the most satisfactory of the handicrafts.

TOOLS AND EQUIPMENT

Almost any home is equipped with most of the tools needed for simple metalcraft. And substitutes can be made or invented, if one is only a bit ingenious, for many of the less common ones.

First of all, you will need a work bench. If you haven't a regular one, use a solid kitchen table, a homemade bench or even a strong box. A vise is useful, but simple work can be done without one. An old-fashioned flatiron, turned upside down and securely fastened to the bench serves for an anvil. Shears for cutting the various metals are necessary. You can get a pair, called Universal, with blades so shaped that they will cut either straight or curved lines. Almost any household has an ordinary claw hammer about and often, too, there is a ball-pein hammer. A good, many-purpose hammer, such as the Dixon No. 4, is illustrated—lower left.



At least one file—a half-round one so that you can use the flat side for straight or convex surfaces, the curved for concave—and a pair of pliers will be needed. A wooden mallet with one end flat and the other round is useful. A scratch awl, or even a sharpened nail, can be used to outline designs. You will need a drill with a fine drill point to make holes to start the saw. A nail will do for a punch. Circles can be drawn with a pair of dividers, a string on a pencil, or traced from a paper pattern. A jeweler's saw with several No. 2 and 3 blades for cutting places the shears will not reach will be needed, and, if you do any joining of metals, a soldering iron.

MATERIALS

Pewter, an alloy of tin with lead or copper, is the easiest metal to work because it is so soft and malleable that it requires no annealing, no matter how much it is hammered. On the other hand, it is not practical for articles which are not hammered into shape because it is too soft. A flat, unhammered pewter tea tile would, for this reason, be unsatisfactory, but I have seen some very lovely ones, hammered into shapes like upside down saucers with designs of fretwork—see page 56. Pewter cannot be enameled because it would melt in the process and other decorations wear off because of its softness. So about the only forms of decoration used for it are fretwork, hammering and fluting. It is the most expensive of the non-precious metals but infinitely cheaper than silver.

Copper, the material next in softness, is such a beautiful metal in itself that there is a charm of color and texture to even the simplest piece. It is very satisfactory to work and takes all the decorating processes well. It requires, however, frequent annealing to make it malleable if it is being shaped into deep bowls.

Sterling silver is, perhaps, the most satisfactory metal to decorate but it is rather expensive for most of us except for small pieces. It, too, must be annealed often while working.

Brass is a brittle metal and cracks easily. It must be annealed often and cooled slowly. Hammering must be done carefully.

Aluminum lends itself to a variety of uses where its light weight is an advantage. It is a brittle metal, must be annealed often and cannot be enameled.

Tin plate, which is not really tin at all but iron or steel coated with tin, may be made into flat pieces but cannot be shaped into bowls. It can be cut, and soldered or riveted into various articles however.

Nickel, or *German silver,* an alloy of nickel, copper and zinc, is hard to work because, like brass, it cracks easily. But it has a beautiful soft finish and makes attractive pieces.

All these metals, except silver, may be bought by the pound in sheet form at hardware stores. They come in various thicknesses and are measured by gauge—the lower the number of the gauge the thicker the metal. Numbers 16 to 22 are the gauges commonly used for metalcraft. If you are making an article to stand hard wear, choose the lowest gauge. Choose 18 or 20 gauge if much shaping is to be done. The softer the metal the lower the gauge that may be used.

PROCESSES

The processes involved in metalcraft may be divided under two general heads, working the metal and decorating it.

Cutting, both straight and curved, can usually be done with the metal shears. If you have shears suitable only for straight work use a cold chisel or saw for curved or difficult places. Keep the metal as far down between the blades of the shears as possible, bending one side if necessary and flattening it out afterward, and you will have little trouble.

Filing the edges which the cutting leaves quite sharp is done in one direction, on the forward stroke of the file. Hold the face of the file flat to the surface being filed and work with a diagonal motion across it. For beveling, of course, the file must be held at the angle of the bevel, rather than parallel to the surface. Finish off the filed surface with emery cloth.

Sawing is simplified if done over the opening of a V shaped sawing board (you can make this and fasten it to the edge of the bench) so that the saw may be pulled up and down through the V opening. Stretch the saw blade taut in the frame with the teeth pointing toward the handle—rub your finger over them to find which way they point—so that they cut on the downward pull of the saw. Do not bear too hard. It isn't the pressure that does the cutting. Move the saw vertically up and down, holding and turning the metal with the left hand. Saw right around curves but, if there are irregular places, it is better to just saw a curved line around outside them and saw or file the details out afterward. Too coarse or too loose a blade or too much pressure when sawing may cause the blades to break. Have a generous supply.

To saw out a design on the inner surface of a piece, drill a hole first, unclamp one end of the blade from the frame, insert it in the hole and reclamp the blade. If the line of the design turns often, drill several holes. Copper is the hardest metal to saw and you may have to rub wax or soap on the blades to reduce friction.

Bending metals at right angles is done by placing a line, drawn where the bend is to be, exactly over the edge of a wooden block and hammering with a flat-ended hammer or mallet. A hammer gets quicker results but it makes the metal harder and may mar the surface. If you want to turn up a long, narrow edge, as the side of a tray, hammer a little at each end first. If the metal is very hard you may have to anneal it.

Curving metals to make bracelets, napkin rings or other curved articles, is done on a rounded surface. Mandrels graded in size may be bought especially for this. But anyone can find a curved surface somewhere about that will answer the purpose. A rolling-pin, piece of pipe, baseball bat, or even a table-leg will do.

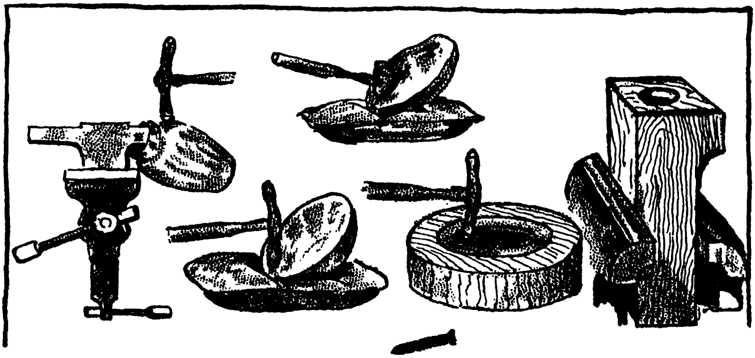
Annealing is the process of softening and shaping metals by applying heat. This is done by turning a blowtorch on them or placing them over a gas burner or other hot flame. Copper and silver may be plunged into cold water immediately to hasten cooling. Brass must be cooled slowly. Aluminum should be heated to only a dull pink color.

Pickling in a mixture of acid and water removes the dirt and scale left on the metal by annealing. The pickling solution varies in strength from eight to fifteen parts of water to one of acid. Sulphuric acid is most commonly used. Be sure to add the acid to the water, in either an enamel or earthenware container and keep it covered tightly when not in use. Be careful of hands and clothing. Do not let any of the iron tools get in the pickle. Leave the piece to be cleaned in the acid for several minutes. If it is too large to place in the solution wash it with a piece of cloth tied on a stick. Aluminum does not require pickling.

Soldering and *riveting* are the two methods of joining metal pieces. In soldering the two metal surfaces are joined by melting a third metal or alloy into the joint. Hard solder requires intense heat which melts both it and the metal and is used for fine work so the joint can be made invisible. Soft solder is sufficient for elementary work. A medium size soldering iron and a roll of acid core solder comprise the simplest equipment. The iron must first be "tinned" which consists of cleaning the tip thoroughly with a file or emery cloth and melting the solder over and around it. Clean the two surfaces to be joined, with the iron heat each surface and melt solder on it, allow to cool, then place them together, heat again until the solder on both fuses then hold in place until the joint hardens. If you are not familiar with the soldering process, I suggest a visit to your local electrician. And just remember that *cleanliness is most important.* Clean all parts, including the solder, thoroughly with emery cloth and then be careful not to touch them with the fingers. Apply the heat gradually or you may melt the metal, especially pewter, as its melting point is low.

Riveting is the simplest method of joining two pieces of metal. Drill holes in each in such position that, when they are aligned and the rivet shank pushed through them, the pieces are joined as you wish. Place the joined pieces flat on the anvil so the rivet head is down and then flatten the other end of the rivet with a hammer to form another head.

Raising is the process of hammering sheet metal into various shapes. It is done by hammering into a depression in a block, called a mould, or into a sandbag, or by outside hammering onto stakes of varying shapes. The simplest way to make a shallow bowl or a plate is to hammer a circle of metal into a mould exactly the shape of the article you wish to make. These moulds can be bought in some forms, or you can make your own out of hardwood blocks. This isn't very interesting or taxing on one's skill, but it does simplify making several pieces alike. The block illustrated has a small hollow over which different shaped and sized bowls may be formed while its various edges and sides are useful for other operations. You might find a section of hardwood log and gouge out different sized depressions in its top, filing and smoothing them with sandpaper. You can also buy or make a sandbag—a pillow of canvas or awning cloth partially filled with sand—into which to hammer.



You can buy, in some places, metal disks of various sizes. However, if you buy the metal in sheet form, which is cheaper, first cut out with the shears a circle of metal the size you wish (approximately the diameter of the finished bowl plus its depth) and file the edge smooth. To act as guides in the hammering draw concentric circles on this the inner one the size the base of the bowl is to be. Place the metal disk on top of the sandbag or the depression in the wooden block and begin to hammer, starting on the base line, with light, firm blows. Always hammer over the same place on the block, and keep turning the disk with the left hand so that the hammer strikes a different place on the metal each time. Follow the base line circle the first time around and then hammer in concentric circles, each row of blows a little farther out than the preceding. If the edge gets bent and kinked, place the bent place flat on the bench and hammer out with the flat end of the mallet. Anneal as necessary. Hold the mallet or hammer near the end of its handle and make slow, swinging, rather light forward strokes. Do not pound hard. Make a template of cardboard (see pottery) to use as a guide.

To flatten the base of the bowl, turn it upside down, find the center and draw the base circle. Then place it over a block a little smaller than the base and hammer it with the flat end of mallet or hammer. True up the outer edge of the bowl by measuring it with the template, drawing a line around. If there is much surplus metal in any one spot cut it off. Otherwise, file the edge even and finish it off with emery cloth. Then polish.

To make deep bowls raise the metal by hammering from the outside over stakes. These come in all shapes and will fit in the bench vise. See illustration on the cover of this book. The hammering process is the same except that the guide circles are made on the outside. Hold the disk of metal tipped at an angle with the upper base line even with the edge of the stake. With the flatfaced end of the hammer strike the disk just above the base line, thus bringing it down toward the stake face.

Keep turning the disk and striking in a different place each time but let the strokes overlap a little until you have made the circle around the base line. Continue hammering, being careful to keep the strokes all directly over the stake to prevent dents in the metal, in concentric circles until you reach the edge. Reversing the direction of each alternate circle—from left to right instead of from right to left—helps to make the bowl an even shape. The result of the first hammering will be saucerlike in shape. If you are using a hard metal, anneal before the second hammering, which is done the same way as the first. Repeat this process until you get the shape you wish. Use a template as guide and finish the base and edge as described for the shallow bowl.

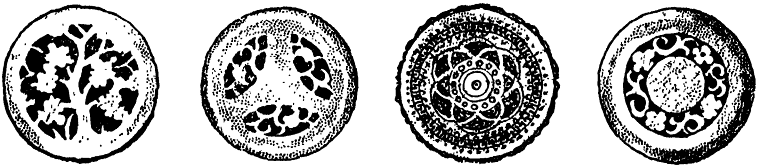
Planishing is a finishing process which consists of hammering the surface of a piece, after it is shaped, with a dome-shaped hammer over an anvil or metal stake. It hardens the metal, makes a uniform surface of small, round hammer marks and helps to true up the shape. The lighter the blows the smaller the marks. To be sure that the piece and the hammer are clean, dip them in the pickle or clean them with emery. Keep the blows of the hammer in the same place over the anvil, as in raising, turning the metal with the left hand. The purpose is to have the marks of the hammer just touch everywhere but this is difficult, so, as all the surface should be planished, the strokes may overlap a little. Hold the hammer near the end of the handle, but keep the upper arm close to the side and make short, light, uniform strokes from the wrist. Pewter need not be planished except for decoration.

DECORATIVE PROCESSES

Hammering is the planishing process used in designs with different shaped hammers to get different effects.

Either the design or the background may be hammered. If the latter, start the hammer marks next to the design outline first and work out. There is no general rule for hammering except to keep a uniform direction for the rows of marks and to suit the shape of the marks to the shape of the design.

Fluting consists of making radial grooves at regular intervals around the outer edges of plates, trays and bowls. File out a triangular groove in the end of a hardwood stake with the wide part on the edge, round up the bottom and edges a little and sandpaper. Make a wedge-shaped piece of wood to fit the groove and place it over the place on the metal to be fluted, using any hammer to pound it in. You will need to measure the circumference of your bowl or plate and divide it into as many parts as you wish flutings.



Fretwork or piercing is the sawing and filing out of designs on metal pieces, such as bracelets, napkin rings, pendants, blotter-pad corners, book-ends, and the like. Holes must be drilled at various points or turns of the design to insert the saw blade for sawing the large spaces. Parts that cannot be reached with the saw are filed out with small, odd-shaped files.

Embossing is raising a design on the metal by using hammers as in shaping a piece. It may be done by hammering in the background, leaving the design in relief, or by hammering out the design from the back. Place the metal to be embossed on a piece of heavy linoleum or similar surface.

Chasing is the hammering out of lines and other details on an embossed design with certain sharp, various shaped tools. Chasing tools may be purchased in sets or individually at about forty cents apiece.

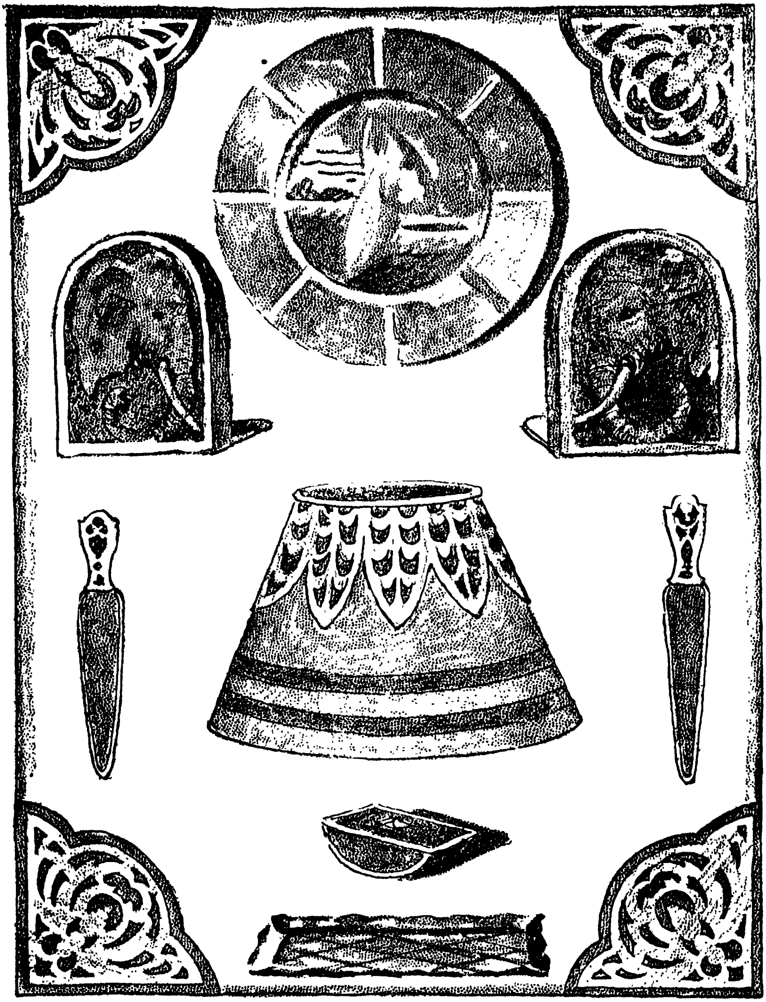
Etching is a process of engraving a design on metal with acid. The part of the design not to be eaten is covered with a substance called a resist, which is not affected by the acid. Black asphaltum varnish is good. Paint the background if you wish the design eaten by the acid or paint the design if you wish it to stand out in relief.

The resist must be thoroughly dry before the acid is applied. Either nitric or sulphuric acid, one part acid to two parts water, may be used for the etching fluid. Mix it in an earthenware or enamel bowl. Pour it into the article to be etched or submerge a small article in it. Be careful, as the acid is a strong poison and will burn hands or clothing. The depth of the etching depends on the time it is left in the bath. Ten minutes is usually enough. If the etching is not deep enough you can pour on more solution. Pour it off quickly, being careful not to let the acid touch any portion of the metal not treated with the resist. Wash the article in cold water and dry it. Wash the asphaltum off with turpentine.

TO FINISH AND POLISH

Interesting color effects may be obtained on metal pieces by oxidation. Copper is oxidized by heat. Clean the metal with steel wool, hold it with pliers and pass it back and forth through the blue flame of a gas burner until it turns the desired color. Wax it while still warm and when it cools polish with a soft cloth.

Acids are used to oxidize some metals. A weak solution of muriatic (hydrochloric) acid rubbed with a soft cloth on aluminum, pewter or tin, makes it a dark gray. A nice finish is obtained by rubbing the oxidized surface with fine steel wool and linseed oil. Another way to get



These are all useful articles on which the metal-worker can try his skill. The blotter pad corners and the top for the lamp shade are fretwork. The design on the book ends is done by embossing while that on the round plate is etched. With the fluting this makes a fine ashtray.

an antiqued effect is to rub on powdered graphite with linseed oil, and polish. Salt, sal ammoniac solution (1 ounce sal ammoniac, three-fourths ounce salt, one quart water) gives copper an antiqued effect. Let the article stand in the solution until it turns the right color.

Liver of sulphur (1 teaspoon to four ounces of water) will make copper iridescent. Rub it on with a soft cloth, then rinse, and dry with a clean, soft cloth. Brass can be given a bronze effect with a strong solution of antimony trichloride. Silver is made white by boiling in a solution of sulphuric acid. (1 part acid to four of water.)

Be careful in handling these acids. If you tire of the colored finishes you can remove them with fine steel wool. Fine steel wool, combined with linseed oil (if you wish a soft finish), buffing powders, and chamois or soft cloths will polish your pieces.

V

LEATHERCRAFT

Long before Columbus sighted the shores of San Salvador, long before Leif Ericson and his Norsemen roamed the rocky coast of New England, the American Indians were old in the art of tanning and used articles made from skins and leathers for countless purposes in their everyday lives.

W. E. SNYDER.

The earliest historical records, the stone tablets of the Egyptians, show that leather was considered a very precious material and decorated leather articles were among their gifts to the gods and kings. The Greeks and Romans used it extensively, the latter even having leather money. Our word, pecuniary, comes from the Latin "pecus" which means hide.

The designs used in the decoration of leather, differed with the surroundings, conditions, beliefs and stages of development of the people making them, but the methods of decoration, tooling, stippling, incising, raising, stamping, dyeing and enameling were similar and are still used by present-day craftsmen.

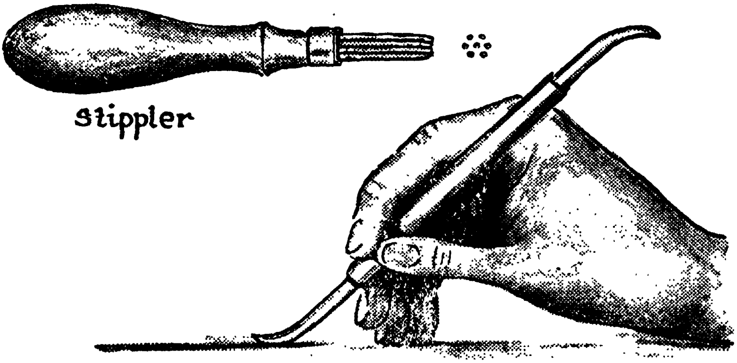
LEATHERS FOR TOOLING

Not all leathers are suitable for decoration. It is much safer for the tyro in leathercraft to rely on the advice of a reputable leather dealer in choosing skins. Some of the leathercraft companies have worked out projects which include the proper leather cut to size, accessories such as lacings, snap buttons and the like, working patterns and design sheets. If you prefer you can purchase these patterns and design sheets and cut your own leather or, if you send them your own design, they will cut the leather for you.

A vegetable- or bark-tanned calf skin is the most generally used for craft work. It comes natural or in a variety of colors. Lining calfskin is a thin skin used for lining purposes which comes in natural color but is easily dyed. It can be tooled but is too thin to take a very deep impression. Suede calfskin is also used for lining. A cowhide especially produced for tooling is called Alhambra Leather, so named because it resembles the leather found in the famous Moorish palace. This is ideal for tooling and stamping, excellent for linoleum, block-printing, and is strong enough to stand up under heavy wear. Tooling sheepskin may be used where a less expensive leather is desired, although it is not as strong and does not tool as well as calfskin. It is used a great deal for linings, particularly in the suede finishes. Pigskin can be tooled only with straight line designs and stippling but it makes an excellent leather for handbags, purses, cigarette cases and such like.

EQUIPMENT

Leathercraft is perhaps the simplest of all the handicrafts both in the equipment needed and in its adaptability to home work. It can be done anywhere, on the living room table or without a table at all. You need a simple modeling tool costing about thirty-five cents which has one pointed end for outlining, tracing and deepening lines, and another wide, flat end for modeling and beveling. Then with a hardwood board or sheet of glass or zinc to work on, a sharp knife for cutting and skiving, an awl or even a sharp pointed nail for punching holes and stippling, and a wooden mallet or just a hammer, very creditable work can be done. And with an outlay of a few dollars you can have every article of equipment you could possibly need, including many accessories.



Stippler

→ Moves in this direction

Modeling tool and how to hold it

DECORATION

The first step in any decoration of leather is to moisten it. Turn it upside down on board or glass and wet it all evenly with a sponge or cloth so that all parts are equally wet, but not so much that dark spots appear through on the right side.

Have your design on a paper enough larger than the leather piece that you can fold the edges under the edges of the leather to hold it firmly in place. Go over the outline of the design carefully with a sharp tool or pencil, being sure to trace every line with firm enough pressure to make a clear line on the leather. Remove the pattern and go over the design with the pointed modeling tool. Keep the moist sponge ready to dampen any parts of the leather that get too dry while you are modeling.

There are four elementary forms of leather tooling.

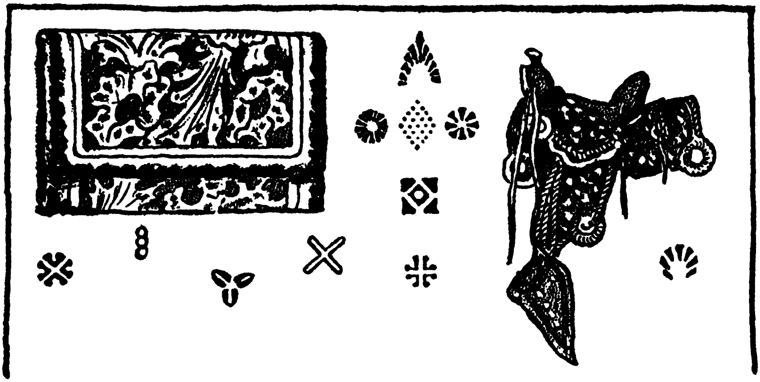
Flatmodeling consists of flattening or pressing down all of the background around a design. Designs for flatmodeling must be enclosed, that is, there must be an outside bordering line in order to have a place to stop. The broad or spoon end of the modeling tool is used with a circular motion, pressing lightly at first and then more heavily until the leather is all flattened. Press carefully with the modeler tipped up along the edges of the design so they will be sharp and clean-cut.

Stippling is another way of depressing the background. However, instead of being pressed down it is hammered down with a sharp seven-pointed instrument called a stippler. (You can improvise with an awl or nail.) This is held vertically and hammered or tapped all over the background area. Care must be taken not to hit so hard as to punch holes.

Beveling, instead of bringing out the design by flattening the background, brings out the lines of the design itself. These are gone over with the broad end of the modeling tool held at an angle so that the point sinks deepest into the leather next to the design and makes it stand out with a beveled edge outward.

Embossing means that the design itself is raised from the back by pressing from underneath with the broad end of the modeling tool. The easiest way to do this is to lay the leather, after the design has been traced on it, down on the glass or board, place a finger of the left hand on either side of the part you wish to raise, slip the modeling tool underneath and press up between the fingers.

If the leather piece is to have a lining you can raise the part up as high as the leather will stretch and fill the cavity underneath with plastic wood, cotton paste, or even



flour-and-water paste, glueing the lining over it when it is dry. But if the article is to be left unlined do not make the embossing too high for it will not hold.

Incising, carving, and *punching* or cut-out are all methods of decoration in which the leather is actually cut. Incising is the simplest of these processes, for just the outline of the design is cut with the incising knife and then pressed down with the modeling tool. In carving, the lancet, a small curved knife, cuts under the figures of the design, the loosened part of the leather is raised, padded with bits of cotton or plastic wood and then pasted back into place. The design is actually cut out in punching or cut-out work, for which suede-finish leathers are often used, and the article is lined with a contrasting material or color.

Stamping is one of the oldest ways of decorating leather. The Moors introduced it into Spain. The Spaniards brought it to Mexico and the Mexicans and Indians used it a great deal on western saddles, for instance. The old stamping tools consisted of small metal rods with designs cut in one end. Modern variations of the stamping tools are wooden dowels and linoleum blocks. Tooling cowhide and pigskin are both good leathers for this work.

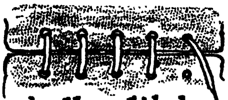
Linoleum Block stamping can also be used on leather. Make a block as described in the chapter on Blockprinting, but keep in mind that the part of the design that is cut out on the block will be the raised part of the leather design. You can either hammer the design into the damp leather with a mallet or put it in a press.

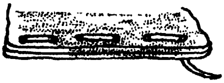
Dyeing Leather. The linoleum blockprint and other designs, provided they are made on the natural leather, may be colored or dyed. You may use either acid or aniline dyes but do not mix them. The dyes come in powder form in a variety of colors but not all colors in either acid or aniline. To use them, dissolve in boiling water in the proportion of a teaspoon of dye to six ounces of water and keep corked tightly when not in use. You may apply them with a brush, or, if you wish a streaked or mottled effect, with a cloth. Have the surface of the leather damp and experiment with a scrap of the same leather to be sure the color is right. Other advanced ways of decorating leather are enameling, using gold leaf, silver leaf, lacquers and colored powders.

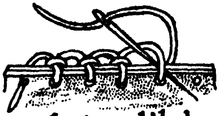
LACINGS

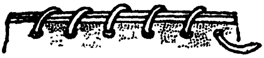
Lacings are necessary for fastening the different parts of the leather articles together and are also used for decorative purposes. There are several different stitches used and the amount of lacing required varies with the stitch. If you wish to join the edges of two pieces of leather together, "head-on," the Butt stitch is used. This requires twice as much lace as the distance to be laced. Be sure to leave an end of the lace underneath when you start and catch it under the lacing as it crosses on the back. When finished pull the lace end through under the laces.

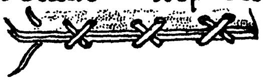
If you wish to sew two pieces of leather together on the edge of an article use the Over and Over stitch. It is


butt stitch


in & out stitch


loop stitch


over & over stitch


cross stitch

used also to decorate single edges and requires a lacing three or four times the distance to be laced—the thicker the leather the longer the lace required.

The In and Out stitch, which is really the ordinary running stitch of the seamstress, is used to sew flat pieces of leather together, as in hand-sewn gloves. Only one and a half times the distance to be laced is the amount of lacing required. Cross stitch is used for the same purpose as the over and over stitch and is a bit more ornamental. It really consists of the over and over stitch done across one way, only skipping every other hole, and then doubling back through the holes previously left to make the cross. Twice the amount of lacing required for the over and over stitch, or six to eight times the distance to be laced, is needed.

The Loop stitch is not only attractive but is most efficient in covering the edges of the leather. It is really what the seamstress calls buttonhole or blanket stitch and, if you aren't already familiar with it, the easiest way to learn is to have some one who sews show you. Four or five times the distance to be laced is the amount of lacing.

You can cut your own lacings or you can buy goat or calfskin lacings in varying widths. Punches for making the holes come in various sizes or you can use an awl or sharp-pointed nail. Be careful not to make the holes too large as that spoils the appearance. Rather open up each hole a little with the tool just before putting the lace through.

Don't try to use too long a lace. It is better to splice. To do this, skive or thin down the two ends to be joined, one on the unfinished side of the leather and the other on the finished, and fasten them together with rubber cement, being sure that they are set before proceeding with the lacing. Mark the places for the lace holes from the paper pattern. When rounding corners you can get a much better finished effect if you lace through the corner holes three times. Lace from left to right with the decorated side of the article up and, of course, begin work in the least conspicuous place.

Florentine Lacing, which is made of kid skin, is much softer and more pliable than the ordinary lacing and, although harder to handle, makes a very attractive appearance. It is used only with the Over and Over stitch and requires two or three times the length to be laced.

In joining together three or four thicknesses of leather by lacing, the joint is better looking if you skive off the edges of each piece of leather. To do this place the leather, finished side down, on the board and, working from left to right, start with a sharp knife about one fourth inch from the edge and carefully, with the knife slanting toward the edge of the leather, cut off thin pieces.

An article must be lined before the edges are trimmed and laced. Cut the lining a little larger than the outside so it can be trimmed after cementing. Lay both lining and outside on the board with the sides to be cemented up. Cover them both with rubber cement, using a fairly stiff brush. Then place the lining down over the outside, smoothing out wrinkles and air bubbles. As soon as the cement has set it is ready for trimming and lacing.

VI

BOOKBINDING

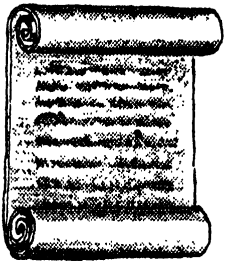
And Moses turned, and went down from the mount, with the two tables of the testimony in his hand; tables that were written on both their sides; on the one side and on the other were they written.

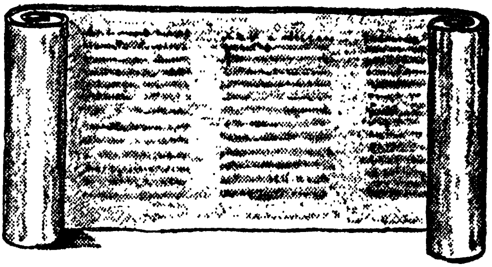
EXODUS.

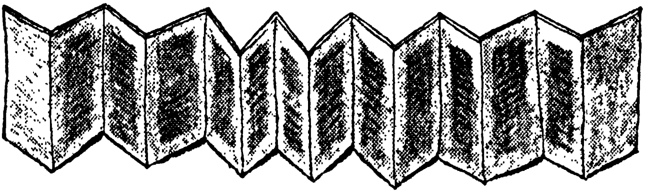
Tablets of stone and of clay served as books when Moses wrote the Commandments. After these came tablets of wax. Then, for a number of centuries, papyrus, made from the stems of a plant which grew in Egypt, was used in the form of rolls. Later on came parchment and vellum, the former made from the skins of sheep and goats, the latter from the skins of young calves. With parchment and vellum, the book form, as we know it now, was developed.

For several centuries bookbinding was carried on entirely by the monks in monasteries. The pages of parchment or vellum were illuminated and colored. Then, with the invention of printing and the common use of paper made of rags, in the fifteenth century, binding became more general.

There are three types of bookbinding in present day use: flexible or tight-back, in which the cover is fastened directly to the backs of the pages and which is best suited to large books or to those with thin paper; hollow-back,







in most general use, in which the back of the cover is stiffened or lined up so that it does not lose its shape or spoil the cover decoration when the book is opened; and library binding, which is inexpensive and strong.

A completed, machine made book is rather a complex looking bit of work but it is surprising how simple the process is when analyzed, and what attractive results may be obtained by the amateur with the minimum equipment and skill. Unlike some of the other crafts, accuracy is important. Ruler and triangle must be used to get straight lines and exact measurements.

EQUIPMENT

You will need as tools for your first experiment a ruler, preferably metal, scissors, pencils (hard and soft), a wood or celluloid 45 degree triangle, a one-inch paste brush, a tapestry or darning needle, heavy linen thread, and a jar of paste. Large shears and a paper cutter are convenient but you can have the paper cut at a printer's.

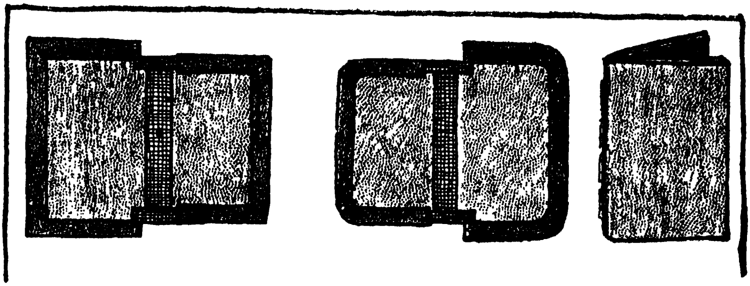
You will need bookboard or newsboard, which is obtainable at art shops, for the cover foundation. It is possible to use ordinary cardboard but it has a tendency to warp. To prevent this, if you do use it, paste together two or more thicknesses of very thin cardboard.

For covers you can utilize any textile material you may have on hand, you can tool a leather cover (see chapter on Leathercraft), make paper batiks or starch papers (see chapter on Dyeing), make your own block-print design on paper or cloth. You can visit the local decorator and get samples of wall paper, make the back and corners of your book of vellum, linen or muslin and use decorative paper for the covers, buy any of the leather substitutes on the market, use oil-cloth in all its varieties or the washable wall-papers if you wish a waterproof cover.

For lining papers there is an equal variety of choice, whether marbled or Japanese paper, any of the decorative wrapping papers, or plain colored papers.

For the inside papers, all depends, of course, on what the purpose of your book is to be: notebook, scrapbook, photo album, some volumes of your favorite magazine (first removing the advertising pages), which afford a good first experiment in bookbinding, or one of your books that has become shabby.

Whatever you do, be sure to have plenty of good quality, smooth paste ready and a pile of old newspapers on which to do the pasting. When pasting the cover material to the bookboard, first mark off carefully on the wrong side of the cover material the exact position of the board, then apply the paste. Have it fairly thin and rub it in thoroughly as quickly as possible, being sure that the entire surface of the cover material, well over the marks, is covered. Lay the bookboard over this pasted surface, turn both over quickly and rub hard on the right side of the cover material. Then press.



A general rule for the size of covers is to cut the bookboard so that it extends ⅛ of an inch beyond the page on the three open sides; in other words, if your book pages are 7⅞ inches wide by 8⅞ inches long, the board should be 8 inches wide and 9⅛ inches long. Cover material must be cut enough larger to lap over the outside edges of the bookboard.

To make the corners fit smoothly turn the laps of the cover material over the bookboard on the three sides, pinch the surplus material at the two corners so that it stands up and clip it off with the scissors, or you may pinch it in two or three places around the corner and clip.

Each pasting operation should be followed by pressing. A hand press is convenient but Mr. Webster or some other heavy tome answers the purpose.

MAKING A BOOKLET

The simplest form of book consists of a cover and inside sheets of paper in single fold, sewed through the center. It might be well to try one like this first for experience in cutting, pasting and sewing. Fold several sheets of paper (but don't try to make the booklet too thick) down through the center and insert one fold inside another. Making sure that they are fitted well, open the pages from the center and sew right down through the fold. It isn't necessary to make a separate back for so thin a book, so you can make the cover by folding a rather thin, pliable, piece of cardboard down through the center in the same way as the pages. Cut the cover material large enough to lap over the edges (allow ⅜ or ½ inch), paste it on the wrong side, place the cardboard on it, lap over the edges and press. When the lapped edges have been pressed dry, spread the entire inside surface with paste, insert the sewed pages tight into the cover fold and, with one hand holding up all the pages except the two outside ones, press the latter down securely onto the pasted covers with the other hand. (These two outside pages form the lining papers and hold the cover to the booklet). Press dry by placing a separate weight on each cover, leaving the pages standing up between.

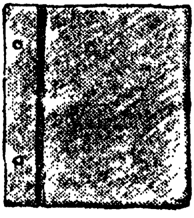
HINGED COVERS

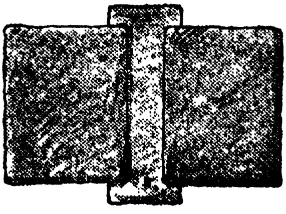
Hinged Covers are used for sketch books, photo albums, scrap books, note books, and the like. The materials necessary are bookboard, a strong cover material, as the strength of the hinges depends on it, paper for leaves, eyelets, and cord for lacing.

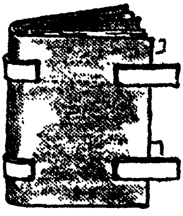
Cut the board for each cover the full size and then cut a strip about an inch wide from the side of each piece to form the hinge. Cut the pieces of cover material large enough to cover *one* side of the large piece of each cover and *both* sides of the hinge and lap over about an inch onto the inside of the large piece (don't forget to allow enough to lap over the outside edges also). The lining papers should be cut a little smaller than the large pieces of the cover. In other words, the large pieces are covered with the cover material on the outside and lining paper on the inside, but the hinge pieces are covered with the cover material on both outside and inside to make them strong enough to stand constant bending. Punch the holes for the eyelets where desired in the hinge strips. Usually two are enough unless the covers are very large. Be careful to mark the leaves for the inside so that the holes in them correspond to the holes in the cover. If you are making a notebook cover, it is a good idea to place your eyelets in the cover similar to the holes in standard notebook paper. If you haven't an eyelet punch you can take the cover to some stationery store or printer's. If you do not wish to use the strong material for the entire cover, use the double piece over the hinge, carrying it well over onto the large piece of the cover, and then use any kind of decorative paper for the inside and outside covers. Pages for a loose leaf scrapbook or album should be strengthened by having the inside edges double as shown in figure at bottom left.

PORTFOLIO COVERS

Covers to be used for drawings, maps, or other loose papers, are made of bookboard with whatever covering and lining desired, joined at the back with a double thickness of vellum cloth or strong book-muslin, and have tapes inserted along the front edges to hold in the loose papers. Cut the bookboard for the two covers. Then cut the cloth for the back in two strips, the outside one of whatever width space is desired between the covers plus enough to lap over onto each cover an inch or more, and long enough to lap over the ends of the bookboard about half an inch. The lining strip should be of the same width as the outside one but a little shorter than the bookboard.







Cut the cover papers large enough to lap over the three outside edges of the bookboard but leave a strip of the cloth exposed on the hinge side. The lining papers are cut a little smaller than the bookboard, as usual.

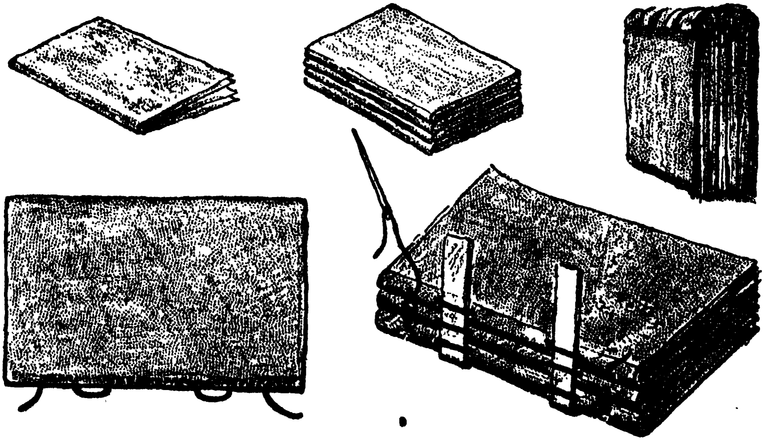
Tape, of a color to match the covers, about half an inch wide, should be used. After the outside cover paper has been pasted on, cut slits (as many as you desire tapes) of the same width as the tape about a half inch in from the edge of the cover and parallel to it. Insert pieces of tape about ten inches long in these slits from the outside, pull enough of them through to the inside to paste securely (they will have to stand considerable strain), and then paste the lining papers on so that these pasted tapes are covered. Another way of taping portfolio covers is to cut the tapes long enough to extend around the book and tie, cutting two slits in each cover for each tape (a shown on page 73, bottom right), one near the back and one near the outer edge, and thread the tape through, pasting it down.

PAMPHLETS

To make covers for pamphlets similar to those for portfolios, leave the lining papers and the inside strip of binding cloth off. Be sure to allow a little more space between the covers than the thickness of the pamphlet so that they will close. When the cover is ready, cut a second strip of binding cloth about two inches wide and the same length as the pamphlet. Fold it through the center, lengthwise, and wrong side out. Place this fold over the fold of the pamphlet and sew them together (you will have to punch holes) in the same way that you sewed the booklet. Then open the pamphlet, lay it face down and paste the outside (still the wrong side) of the cloth. Close the pamphlet and insert it into the cover, pressing the pasted cloth down securely onto the bookboard, being careful to keep the fold in the center of the back of the cover. Then line the covers. It is always a good idea to place clean sheets of paper between the covers and the pages after pasting in the lining. Otherwise the dampness may wrinkle the pages. Press the finished book under a heavy weight. This pamphlet might be a good subject for experiment.

A SEWED BOOK

A "signature" is a sheet of paper, folded for the pages of a book or magazine. One fold makes a folio, two folds a quarto, three folds an octavo. To make these signatures into a book, pile one on top of another with the folds even. Don't use too many signatures for your first attempt. You will need two or three short pieces of tape about a half inch wide. Lay these in position crosswise on the fold of the top signature, one in the middle (if you use three) and the other two about an inch and a half from each end, and mark carefully the places where the edges of the tapes come. Make two other marks outside the top and bottom tapes. With this signa-

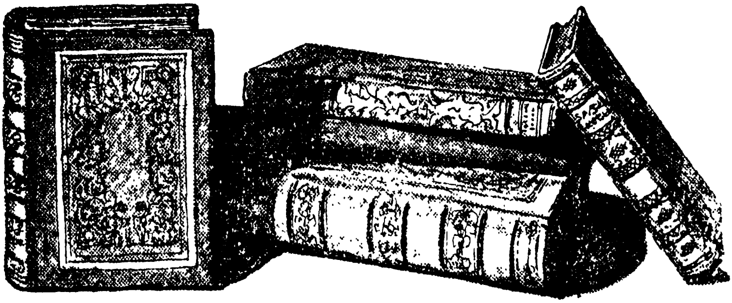


ture as a guide make similar marks on the other signatures. Then take a coarse needle and make holes ready for sewing (opening up each signature) right on the fold where the marks are. Arrange in order again. Turn the first signature face down with the top to the right and begin sewing on the outside or right, in at the first mark, out on one side of the tape and in on the other so that the thread holds the tape in place. Leave the end of the thread long enough to tie afterward. Turn the second signature over the first, carry the thread down through the first hole (left) and sew it the same way, only back from left to right. Tie the two ends of the thread securely when you reach the right of the second signature. Place the third signature in similar position and sew like the first, only when you reach the left side, reach down and catch the needle under the thread connecting the first two signatures, holding the thread outside of the needle to form a loop. Connect all the signatures in this way. (Examine a sewed book that is fairly loose in the joints to see how the finished product should look.)

If you wish to add fly-leaves rather than use the outside pages of the signatures for them, fold sheets of paper once so that they are the same size as the book pages and paste their folded edges to the folded edges of the top and bottom signatures, being careful to keep the ends of tape outside. Place under a weight to dry. If you hammer the sewed folds at this stage it will make the back of the book tighter and firmer. Next, cover the entire back of the book with paste, rubbing it in thoroughly, and paste the ends of the tapes, pulled taut, down to the outside fly leaves. Paste a strip of muslin cut a little shorter than the length of the book and wide enough to extend about an inch onto the fly leaves, securely over the back and down over the tape ends on the fly leaves. Press. When dry, cut off part of the leaves to which the tapes and muslin are pasted, (slant diagonally from back binding), leaving just the stubs. The book is now ready for the cover.

Make the cover in the same way as for pamphlets, being sure to have the cloth back wide enough for the book, but leave off the lining papers and inside strip of cloth. Insert the book carefully in place inside the cover, paste down the stubs onto the insides of the covers, then paste the next fly leaves down over the stubs to form the cover linings. Press carefully. Be sure to use plenty of old newspapers when pasting to protect other sheets and to place several thicknesses of clean paper between the damp pasted parts and the leaves of the book so they won't wrinkle.

A good way to work out this sewing and binding is to take apart carefully an old book or even a sewed magazine that needs rebinding, pulling out the old sewing, observing how it is sewed, scraping off the paste or glue, and making it over.



VII

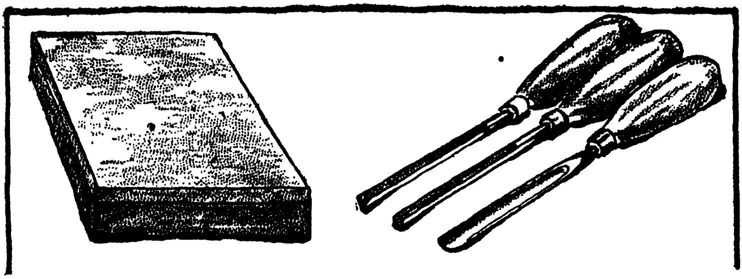
BLOCKPRINTING

I hold with none who think not work a boon
Vouchsafed to man that he may aid his kind,
With offerings from his chisel, wheel or loom,
Fashioned with loving heart and loving mind....
A CRAFTSMAN'S CREED—AUTHOR UNKNOWN.

Blockprinting is a primitive process of printing by hand which was in use, so records show, long before books were printed. It consists of transferring designs carved in reverse on blocks to paper or fabric by means of ink or paints. In the olden days the blocks were all made of wood but a modern substitute, which is much easier to carve, is linoleum. So, as an introduction to the craft, we shall describe the making of a linoleum block and its transfer to a fabric and to paper. If you wish to make a block of wood, the process is the same. Just be sure to choose a fine grained, fairly soft wood.

The heavy, Battleship linoleum is best but if you have only the lighter weight available you can glue or cement it to a block of wood the same size. You can buy linoleum blocks already cut to various sizes and mounted on wood in art stores.

It is possible to make a simple linoleum block design with no other tool than a Sloyd knife or even a pen knife. If you use the latter it is a good plan to tape the blade



open so that it won't close and cut you. A set of carving tools does a better job, however, and you can buy one for very little at a hardware or art store. Three of these, one with a small V-shaped gouge, one with a narrow U-shaped gouge and the third with an open U-shaped gouge will be found very useful.

MAKING THE BLOCK

First of all, be sure that the linoleum is warm for it cracks easily when cold. Smooth the surface with sandpaper and then cover its entire surface with white paint, tempera or Chinese white so that the design will show up better. Place a piece of carbon paper, carbon side down, on the block. Draw your design on a piece of tracing paper. This, being transparent, can be placed face down over the carbon paper on the block with the design visible so that you can go over it carefully with a sharp pencil, pressing down hard, and thus transfer the design to the block. If you want to save yourself a headache just take my word for it and do the design transferring this way. It saves all the confusion of figuring out whether the printing will turn out the looking-glass kind, right hands becoming left hands, and the like, since all prints are the reverse of the original design.

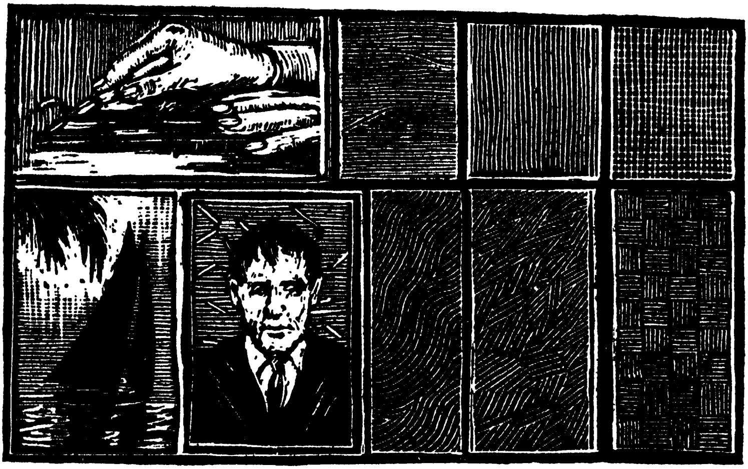
When the design is all outlined on the block you must then decide whether you want the background or the design itself to be in color, that is, printed. Then, to avoid cutting the wrong part, shade with a pencil or color with crayon the part you wish to remain the color of the paper or fabric which is the part you cut out. It's also a good idea to keep the paper pattern, colored the way the design is to be, near by for reference while you are cutting. Use the sharp knife to outline the edge of the design first of all. Then cut away all the background, that is, the part to remain white, leaving the part to be colored standing out in relief.

If you use the carving tools, outline the part to be printed with the V-shaped tool, carve around letters, if there are any, and other small curves with the small U-shaped tool and use the large U-shaped tool to cut away the large surfaces. Cut out details first. Make short strokes for curved lines. Cut at least one-eighth of an inch deep so you won't have a blurred impression on the print. Keep the tools sharp and, to avoid accidents, never put the hand holding the work in front of the tool.

PRINTING THE DESIGN

To transfer the blockprint to a fabric you will need flat, oil-paint brushes about a half or three-quarters inch wide to apply the color, a plate or piece of glass to mix the colors on, and your material. Almost any evenly woven material may be used, unbleached cotton being perhaps the best for a first attempt as it is not so likely to slip during the printing process as the pongees or crepes. However, whatever you use, be sure that all dressing is washed out and the material pressed smooth.

Make a pad on your work table of a number of papers covered with a white blotter or cloth. Fasten the pad to the table with thumb tacks and place the material to be printed on this.



Any dyes, show-card colors, water-colors or oil paints may be used. Dyes or water colors must be thickened with a little mucilage. Show-card colors are thinned with water only. Oils must be thinned with turpentine and a mordant added to set the color. You can usually buy the mordant ready prepared at an art dealer's. Or here is a formula: 1 pt. turpentine, 1 oz. acetic acid, 1 oz. wintergreen or substitute. Apply the color to the block with a pad made of several thicknesses of soft cloth or blotting paper, or with the side of the brush.

The consistency of the color, whatever kind you use, will depend on the fabric used, as each material takes color differently. So the only way to get the effect you want is to try out the color on a sample of the material. If it is too thick it will be painty, if too thin it will run. Cover the raised part of the block evenly, being careful not to let any get on the background. If you use more than one color be careful not to overlap them.

Mark with pins the exact place you wish to print on the fabric. Then place the painted block face down on this place and press firmly, being careful to exert equal pressure on all parts and not to let the block slip. If the print does not come out clearly the first time, you will have to wipe the paint off the block, paint it over and make a new impression in exactly the same place. This isn't always easy to do, so it's wiser to work carefully.

PRINTING ON PAPER

Blockprint designs on paper are popular for Christmas Greeting cards and for book-plates. They also make decorative book-covers. (See Book-binding.) To transfer the design to paper you will need ink instead of dyes and a small rubber roller. Spread some of the ink smoothly over a piece of tin or glass, rolling it with the roller. Being sure that the roller is well inked, run it over the block, then lay the inked surface over the paper you wish to print on, which has been placed on the padded table. Press down as described with the fabric. If you don't wish to fuss with the printing yourself you can probably arrange with a printer to make the prints for a small sum.

When you have finished with the present use of your block, remove all paint or ink with turpentine before putting it away.

POTATO AND APPLE DESIGNS

A very simple and amusing way to make designs on textiles is to carve the design on a cut, level section of raw potato and, using dyes or water colors, make prints the same as above. Of course the potato block cannot be preserved for future use. Apple sections may be used the same way, with the core as part of the design.

VIII

THE ART OF DYEING

. in blue and in purple, in scarlet
and in fine linen. . . .

EXODUS.

What would the world be without color? Primitive people in every country have worked out their own experiments in dyeing in order to have it. In our own country the Indians utilized berries, roots and the like for dyes and stains, both for personal decoration and for their rugs and potteries. Our pioneer ancestors had their "Walnut Jeans" and used other colors from vegetables, berries and roots to dye their homespuns.

Dyeing became a fine art in the Batiks made by the people of Java. In this process, beautiful and effective designs are produced by applying wax to portions of the material so that those parts do not absorb the dye. A number of colors may be obtained in one design by repeated waxings and dyeings. Batiks may be used for wall-hangings, draperies, pillow-covers, lamp shades, dresses, blouses, negligees, handkerchiefs. A variety of materials may be used, anything from unbleached muslin to the most luxurious and expensive velvet.

EQUIPMENT

Regular Batik dyes or ordinary powder or liquid dyes of any reliable make may be used, just observing the same caution as in all dyeing, to use cotton dyes for cottons and silk dyes for silk. Powder dyes are the cheapest and may be made up according to the directions on the package in the proportion of about one quart of water to a package of dye and bottled for future use. Liquid dyes may be bought in concentrated liquid form and mixed like watercolors to obtain other shades. One teaspoonful of Batik dye or two teaspoonfuls of ordinary liquid dye to one gallon of water is about the right mixture. Add acetic acid (about one teaspoonful) to set the color.

There is a special wax, made of equal parts of beeswax and parrafin, prepared for Batiking which may be bought at artists' supply stores in pound and half-pound packages. Plain, unrefined beeswax is quite satisfactory for all ordinary Batik work, however, and a mixture of beeswax and parrafin in equal parts may be used to get crackled effects. Varying the amount of parrafin will vary the effect of the crackling.

A wide soft brush for applying the wax to large surfaces is necessary, as well as a number of small and large Camel's hair brushes for wax and colors. It is always worthwhile to get good quality brushes. If they are kept clean they will last a long time.

Have a small bowl for the wax, a flatiron, gasoline, a pile of old papers, blotters (white), pins and thumb tacks ready. You will need a stove on which to melt the wax. If you have an old picture frame bind it round and round with strips of cloth and pin the material securely to it. This keeps the material away from the table surface while waxing; otherwise the wax may stick and break. Small pieces may be fastened at the top to an upright board and held out away from its surface while waxing.

You will also need several pans for dyes and rinsing and a saucepan to set the bowl of wax in to melt. Be sure to rinse the material in clear, warm water if there is the least bit of dressing in it and press out all wrinkles with a medium hot iron before dyeing.

DESIGNS

Choose designs that are clear, striking and simple—especially simple at first. If you don't feel capable of making your own design, chintzes, cretonnes, wall papers and the like offer many attractive ones.

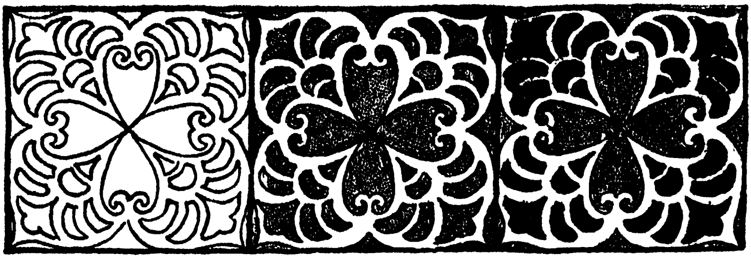
You may like to draw an original design right onto the cloth with the waxed brush. It is a simple matter to transfer the design to transparent material as it is only necessary to place the material over the design, drawn clearly on smooth, heavy paper, fasten it securely with thumb tacks and draw the outline with a waxed brush onto the cloth.

If you are using a heavy material you can either use a carbon paper—be sure that it is carbon side down—between the pattern and cloth and go over the outline with a sharp pencil, bearing down firmly, or you can prick the outline of your pattern with a coarse needle, place it over the material and then rub carefully over the holes with soft, dark chalk. After removing the pattern go over the outline with the waxed brush.

Have the beeswax, which has been pared into the bowl, melted. (Set the saucepan of water in which the bowl is placed on the stove and keep the water simmering but not boiling.) Dip the brush into the melted wax just enough so that the end of the brush is pointed with it. Have the wax at the right temperature to make a transparent line. If it gets too cold it will harden on one side only and chip off. If you have too much wax on the brush or press too heavily it may make drops.

DYEING

In order to be sure you will like the completed color



scheme it is well to color the paper design with crayons before starting to dye the material. Try several different combinations. Then have the various colored dyes, diluted to the right consistency *and not too warm or they will melt the wax,* ready in the different saucepans. When you are experienced you can get many variations of shade by mixing the different dyes or by dipping the material first into one color and then into another.

The usual method of dyeing is to dip the material into the dye bath, first waxing the parts that you don't want to take the dye, and then remove the wax by dipping in gasoline or by pressing with a warm iron over blotters or newspapers. But for wall hangings or screens in which it is an advantage to have the wax outline for extra weight, an easy and efficient way, although perhaps not orthodox Batik, is to dip the brushes, a different brush for each color, into the dyes and paint on the material as you would with watercolors. The wax outline keeps the colors from running into one another.

Crackling. Sometimes the Batik may be improved by softening or toning it down with a contrasting color applied in a cobwebby effect. To do this apply a mixture of beeswax and parafin with a wide brush over the entire surface before the former wax is removed. Dip it in cold water to make the wax hard and brittle, then crush it in the hands and dip it in a dye bath of a different color than that used before. This is called crackling.

Removing the Wax is the least pleasant process of Batik making. The simplest way is, of course, to just dip it in gasoline. But be careful! Do it outdoors if possible. If not, open all windows and doors and do not have any fire or open flame near. Another way to remove the wax is to place the waxed material over a pad of old, clean papers and press with a medium hot iron, throwing away each sheet of paper as soon as it has absorbed wax. Be careful not to pour the wax down the drains and clog them. Empty the dyes and gasoline out of doors if you can or run them through a thin cloth to catch the wax.

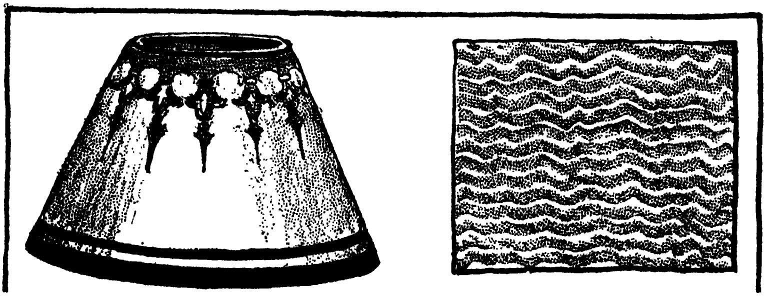
PAPER BATIKS

Any kind of porous, fairly heavy drawing paper may be used for paper Batiks, which are nice for lampshades, book cover papers, and the like. They resemble wood or linoleum block prints so the same kinds of designs are good. First draw the design carefully on the paper. Then, keeping in mind which spaces you wish to be left without paint, in order to allow the ink to stain them, paint the other parts of the design with a thick coating of show-card color or tempera. After the paint has dried thoroughly, spread a coat of India Ink over the entire picture with a wide brush. When sure this is absolutely dry, tack it to a drawing board and hold it under the water faucet to wash off the ink. Don't be afraid to use your fingers to assist the water and turn the board in different positions so that the water will hit all parts. The tempera acts as a resist to the ink and so the parts covered with it are not affected while the spaces which were not painted will be stained by the ink. Leave the paper on the board until dry.

STARCH PAPER

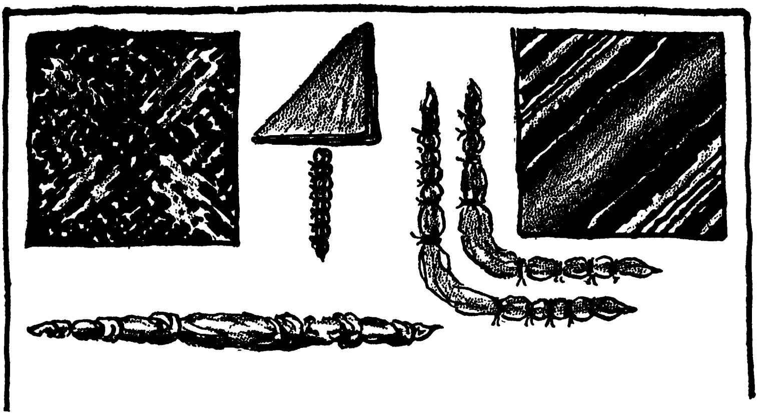
Another way to make attractive, decorated papers, useful for all kinds of purposes, is to use ordinary laundry starch colored with India Ink or show-card colors. You can use almost any kind of heavy paper that isn't too absorbent. You will need a brush to apply the colored starch and a variety of articles from the kitchen drawer or junk box with which to make designs. A comb, pencil eraser, potato masher, stiff brushes, anything will do.

Make a thick, creamy, smooth, boiled starch. Then mix a little of the India Ink or tempera of whatever color you wish with some of the starch. Don't use too much color or the starch may crack on the paper. Paint the entire surface of the paper and, while it is still wet, decorate it with your design. The comb teeth drawn over it will make wavy lines, as shown here on the right, a potato masher will make conventionalized flowers, a twirl of the paint brush attractive whorls.



TIE AND DYE

This might be called the kindergarten class of Batiks. It's a simple process—one really feels like an inmate of an institution for the feeble-minded while doing it—but affords much fun experimenting and many lovely effects may be obtained. The idea—as you may gather from the name—is to tie folds in the material so that the parts tied do not take the dye, except as a little may seep in under the cords.



There are various ways of making the designs. You may just tie the material into different shapes with tapes or cords, or tie different shaped objects (buttons, cubes, matches, pebbles) in. You may draw designs in colored chalk and go over the outlines with basting stitches, pulling up the threads and then tying or wrapping cords around the gathered parts. You may cut a pattern from paper, pin it in position and baste around the edge and then pull up the threads and wrap with cords. Fold the material to be dyed according to the number of times you wish to repeat the design. For scarfs, lunchcloths, bedspreads, you will probably want four repeats and so will fold the material first in halves and then in quarters.

Unbleached muslin, voiles, pongees, silks, almost anything may be used. If you want to experiment without expense use some old sheets. They take the dye well and are fine for curtains at the summer cottage.

COLOR AND DYES

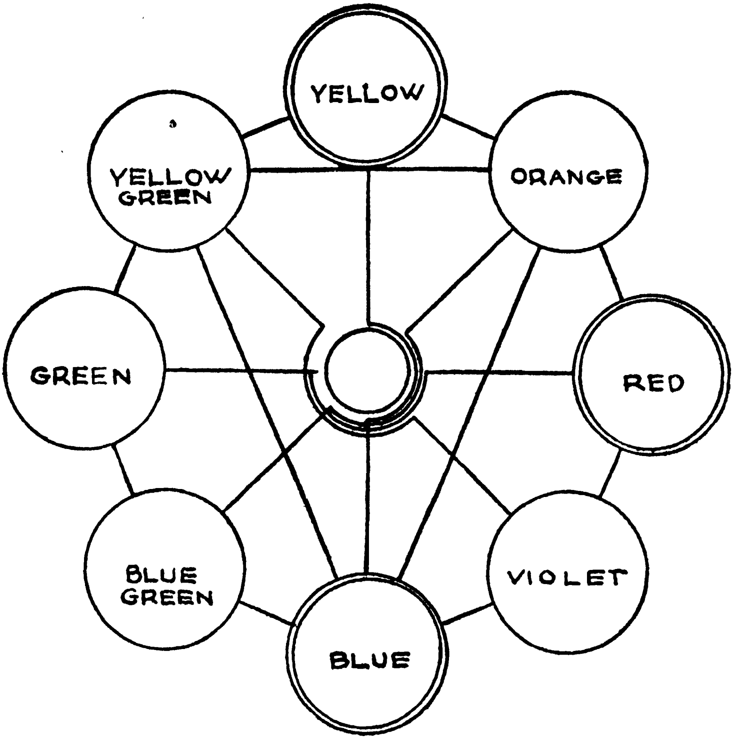
The same directions apply to tie and dye as to any other dyeing and the same kinds of dyes are used. Any number of color schemes and variations may be obtained.

You can use different shades of one color by diluting the dye. For instance, attractive curtains may be made for summer cottage or bedroom by tying practically all the upper part with cord or tape so that just slight streaks of the color appear, making the center section a light shade of whatever color you choose with just a few ties of cord so white lines show, and the bottom section a dark shade of the same color. Dip the entire curtain into the light colored dye first, then the part you want dark into the concentrated solution, and then the whole piece into the light dye again. Rinse in clear water between dippings or the color may be muddy looking. Dipping in the light color after the dark makes soft, blended effects rather than sharp outlines. Take a spoon and throw some of the dark dye around the parts tied so that bits of color will seep in around the cords. To make a sunburst effect with a dark center, tie a button or other round object in the center, crease down evenly from this and tie at intervals.

You can start with a colored material if you wish and tie the parts you want to remain this color. You can tie in part of the design, dip in the first, light colored dye bath, then tie in more designs and dip in the darker shades. When dyeing is done remove the cords, rinse thoroughly, and press dry with a hot iron. This helps to set the color.

COLOR CHART

The three primary colors are red, yellow and blue. The three secondary colors are green, orange and violet. Tertiary colors are yellow orange, orange yellow, red orange, orange red, red violet, violet red, violet blue, blue violet, blue green, green blue, yellow green, and green yellow. If the colors described by two colors are confusing, consider that the first modifies the second,



therefore, there is more of the second hue than of the first. All of the tertiary colors have not been included on the chart but it is easy to fit them into their proper places.

Possible combinations of colors are:

1. Opposite colors on the wheel.
2. Neighboring colors on the wheel.
3. Colors forming a triangle.
4. Different shades of one color.

VEGETABLE DYES

Our Colonial ancestors were dependent on the materials about them for their colors. They boiled the various ingredients, using wood ash, cream-of-tartar, copper or alum as a mordant to set the dye. Alum is probably the most available for modern use and should be used in the proportion of about three ounces to a quart of water.

Some of the vegetable colors discovered by the Indians or by the colonial settlers, with which you may like to experiment, are:

Yellow, made from yellow-root or hydrastis, the stems, leaves and flowers of St. John's wort, the barks of walnut, hickory, yellow oak, Lombardy poplar, alder and birch, the leaves of tumeric, peach or smartweed, clematis and bull-berries.

Red, made from madder root, beets, cranberries and strawberries, and a purplish red from pokeberries.

Blue, made from indigo, spiderwort flowers, myrtle, garden purslane and larkspur.

Green, made from black-oak bark and the combination of gold-seal and indigo.

Orange, made of powdered dragon's blood and the inner bark of alder and sassafras.

Brown, made from butternut, hemlock and maple barks.

Black, made from logwood, bugleweed, and from sumac or oak chips boiled with bits of iron in the pot.

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